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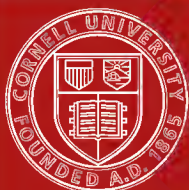
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PROBLEMS OF SECONDARY EDUCATION

BY

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U . S . A

EDITOR'S INTRODUCTION

THE American high school was organized and attained much of its development before our present complex industrial and social civilization had evolved. During its early development the curriculum of the high school, its methods, ideals, and values were worked out and ~~its aims and purposes were in large~~ part determined with reference to social conditions and educational conceptions which no longer hold true. The aims and purposes came to be the offering of certain fixed courses of study, and the preparation of pupils to pass certain examinations demanded for admission by colleges to which the schools were tributary. Certain traditional offerings in required subject matter were made, but the actual value of the offerings was in no way guaranteed. This condition persisted until a relatively recent date, and has not as yet wholly passed away.

In the mean time we as a people have experienced vast and far-reaching social and industrial changes, which have profoundly modified almost all phases of life among us, and the end is not yet in sight. From a small and an isolated nation, with simple social and industrial and political problems, we have evolved into a world-power with world-problems to be faced.

From a rural and an agricultural nation we have in large part changed into an urban and a manufacturing nation. New social and industrial classes, with new social and industrial needs, have developed among us. Many new trades and callings and professions have been evolved, each in turn demanding special and oftentimes extended training.

The burden of preparing the future citizenship to meet these new social and industrial and political problems has been thrown more and more upon the schools by each successive generation. Since the Spanish-American War the demand for new types of school training to meet changing conditions has been marked, and it seems almost certain that one result, with us, of the Great War in Europe will be to increase the number of directions in which modifications of our educational systems will be found necessary and to accelerate the former rate of change. The resulting strain thrown upon our schools probably will be heavier than we now anticipate, and the pressure in the field of secondary education probably more marked than in any other part of the school system.

That we shall need to evaluate anew our educational processes, and in terms of new social and industrial and civic demands, goes almost without saying. Though the developments in secondary education during the past quarter of a century have been remarkable, and though the number of new courses and subjects of study offered and the number of new types of high

schools which have been evolved to meet new demands exceed the development of any previous period, we cannot feel that secondary education in the United States has as yet in any way reached its final form. We are still evidently in a period of transition, and in the near future still more fundamental reorganizations will have to be made.

The old and indefinite intellectual aims of "culture," "mental discipline," and "citizenship," which were set up after the high school ceased to be primarily a vocational school to prepare for the ministry, and which have dominated instruction in our secondary schools for the past half-century, are now in process of being supplanted by new aims and purposes, — aims and purposes inspired by a vigorous democratic civilization, actuated by a scientific attitude toward the problems of industrial, civic, and human welfare. With the increasing tendency of our American States to require some type of school training up to sixteen years of age, and the increasing tendency of many forms of our national activity — agricultural, industrial, social, and political — to turn to the school for help and guidance, the demand that our secondary schools shall reformulate their aims in terms of socially useful ends is becoming more urgent each year. That the critical methods of scientific inquiry are to be applied to the work and problems of secondary education seems now apparent, and that the present smug complacency of many high-school principals and

teachers must soon be superseded by an experimental attitude as to means and methods in the education of adolescents for personal usefulness in a modern world, is also coming to be an accepted principle in our educational work.

The present volume in this series is largely a volume of questions as to the need for and the directions along which the coming reconstructions must be made. The author does not attempt to settle much of anything as to how this reconstruction shall be effected, but instead points out the main lines along which future progress probably must be made, and raises scores of questions which college authorities, supervisory officers responsible for courses in secondary schools, and high-school principals and teachers must face and attempt to solve. Nowhere have we heretofore had presented so able and so comprehensive a statement of the fundamental problems now before us, in the redirection of secondary education, as is presented in the twenty-five letters which follow, and it gives the editor much pleasure to be able to present to students of secondary education a volume of such critical insight. It is also a pleasure to add to the series a new number from the pen of a former and a deeply respected colleague.

ELLWOOD P. CUBBERLEY

PREFACE

Most of the following papers were prepared during the year 1914, in the midst of administrative duties. Only two of them (Nos. xv and xviii) have heretofore been published in the form here given, and in each case for a local circle of readers only. No. xxi was published originally in substantially its present form in *School and Society*.

The papers have been cast in the form of letters because this device seems to facilitate a slightly more direct and personal approach to the problems under consideration.

It will readily be seen that one central idea recurs in all the papers, namely, that the time has arrived in the evolution of secondary education when we must study the objectives or purposes of that education as they have never been studied heretofore. We must substitute for the traditional objectives — both the immediate, such as “passing the subject,” and “getting into college,” and also the remote, such as “character-building,” “mental training,” and the like — others of a more positive and scientific character, based on demonstrably valuable ends probably to be achieved for the individual and for society through

the processes of secondary education. Having determined our aims, we must then ascertain the most effective means and methods of realizing them.

It is no easy task to endeavor to give concrete expression to the problems of educational objectives in connection with each subject of secondary education. The results presented in the following papers are far from satisfying the writer. But he hopes that the attempts here made will induce others, more familiar with the specific problems involved, to analyze more fully and adequately than he has done the problems here suggested. In contemporary discussion of educational values we have had an excessive amount of assumption and of dogmatic contention based upon now antiquated psychological speculations. We now need detailed consideration of the purposes actually served by the studies which constitute our secondary-school programs or of the studies which might replace those already established by right of custom.

The report of the United States Commissioner of Education for 1914 records that there were in the public and private secondary schools of the United States for the school year 1913-14 a total of 1,370,000 pupils, besides upwards of 170,000 in commercial schools. Of the secondary-school pupils, almost ninety per cent were in the public high schools. It is clear that

the very numbers of pupils now found in our secondary schools bring these schools into a position very different from that occupied for the first three quarters of the nineteenth century, when public secondary education in America was just beginning to make itself felt. It is trite to restate the truth that the high school is the people's college. The fact is, that in a very real sense it represents the sole opportunity for systematic general education, beyond the elementary school, for at least forty or fifty per cent of the population.

Throughout these papers it is assumed that our secondary education has, as respects numbers of pupils and public support, grown much faster than it has as respects internal adaptation of its means and methods. As a consequence public authorities and the teachers in charge of these schools have not yet adequately defined, in terms of the new purposes to be served by them, the purposes of these schools.

In so far as these papers imply criticism of present practices, that criticism is not intended to be directed in an unfavorable sense against teachers and others now responsible for secondary education. The purpose throughout is to provoke constructive suggestions as to future developments, and to pave the way for experimental studies and trials that will give us a more definitely functioning secondary education.

The writer holds, of course, that the secondary school in some form or other must include opportunities for vocational education, but he does not for a moment admit that the fostering of vocational schools should in the slightest degree be allowed to diminish the interest in and efforts toward better liberal or general education, as long as pupils are willing to devote themselves to it.

If the suggestions made in the following papers will lead to further careful consideration of the problems involved, the present writer will consider his purpose achieved.

DAVID SNEDDEN

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PROBLEMS OF SECONDARY EDUCATION

PROBLEMS OF SECONDARY EDUCATION

I

To a Superintendent of Schools:

IN the present crisis in secondary education, the superintendent of schools finds himself at the storm center. To him come from various quarters the new and varied demands that are being made upon secondary education. The superintendent realizes that the extremely rapid growth of secondary education, which has been so marked during the last quarter of a century, is due in large part to demands very different from those that were met by secondary schools in the past. He knows that, to an increasing extent, parents of all classes are seeking to obtain for their children educational advantages beyond those offered by elementary schools. He realizes that the steady tendency of legislation looking to a protected childhood is making for a more or less obligatory attendance upon schools up to sixteen or more years of age. He is aware that modern industry is offering less and less opportunity for the young person already employed to fit himself for promotion, and that consequently an ever increasing number of boys and girls turn to the schools for some sort of specific preparation for their life's vocations.

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The superintendent of schools knows that among his high-school principals and teachers only a few sense the importance of these modern conditions of secondary education. These few are readers and thinkers, and are disposed to do in a quiet way a certain amount of experimental work. Nevertheless, the large majority of school principals and teachers are essentially conservatives; that is, they are occupied in doing the tasks that have been set them, have become thoroughly familiar with the established routine, and are not disposed to look with favor upon proposed changes, or to accept additional responsibilities. Many of them have become quite habituated to the notion that the secondary school, or at least the public high school, is designed essentially for boys and girls of more than usual ability, and that consequently one of its functions is persistently to eliminate all pupils who cannot meet prevailing standards. The common attitude of principals and teachers of this class is that of looking with suspicion upon proposed innovations in, or additions to, the work of the school, and of making the introduction of these changes as difficult as possible, while at the same time discouraging the establishment of independent schools designed to meet the new needs.

Because of the rapid expansion of secondary schools, old standards do not accommodate themselves to the new demands. It is probable that extensive changes are pending in the whole field of secondary education.

All current literature on the general subject indicates a widespread state of profound unrest. Our college departments of education, the oldest of which has been in existence little more than a quarter of a century, are now contributing the beginnings of scientific inquiry to the movement for the systematic study of all forms of education. There are persistent demands that high-school teachers become acquainted with the arts of teaching, as well as with the subject-matter of the studies or branches which they are employed to teach.

It is hardly to be expected that the superintendent of schools can, with his many other duties, enter in detail into current matters of policy, with reference to which, nevertheless, it seems to me he must, sooner or later, take a decided stand and must place himself in a position to voice the community's more persistent demands.

But it is important that the superintendent of schools should at the present time be hospitable towards proposals for better defining the objectives and for adding to the varieties of secondary education. He should realize that, while the historic mission of the high school was, perhaps, primarily to fit more capable boys and girls for college, now, for a very large proportion of the community, this high school is in itself the final agency of liberal education. Furthermore, he should appreciate that we have entered upon an era when the public demand for vocational

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education in specialized schools can no longer be ignored or resisted.

As I see it, we are now confronted, as regards the education of young people from fourteen to eighteen years of age, by two conspicuous demands which must constantly affect the organization and conduct of secondary schools. In these schools pupils not yet ready to specialize along vocational lines must be enabled to find the means of an ample liberal education in the best sense of that word. In the second place, because of the comparative breakdown of effective vocational education in and through the industries or other non-school agencies, new types of schools must be organized for the purpose of training for occupational life. A very large majority of our people enter upon vocational activities some time during the years from fourteen to eighteen. Consequently, it is in this period that most effective preparation for the pursuit of the majority of vocations can be made.

Ultimately we shall certainly have demands for still more varied types of secondary education. The field of physical education, for example, is by no means as yet fully occupied for people of the adolescent age. Similarly, we shall in the future develop more extensively special agencies for a broader moral, social, and civic education than we have as yet realized. We shall do this because of the pressing demands of our complex and delicately adjusted civilization.

But, for the present, within the fields above indi-

cated, the superintendent of schools will find ample opportunity to encourage many and varied developments suited to the demands of our own time.

An important question in this connection for the superintendent of schools to decide is as to how far different varieties of secondary education shall be organized under one administrative and teaching organization. It is obvious that we have here problems arising from a conflict of principles. If separate schools are organized to minister to different ends of education, there is always danger of the development of social castes among the different groups of pupils. Furthermore, there will arise difficulties in connection with that large proportion of pupils who at the outset will be incapable of making effective choices if these are to be regarded as final. On the other hand, there can be little doubt that the efficient realization of any particular end in education depends upon the development of a more or less specialized machinery of administration and of educational practices looking to that end.

My present conviction is that the various forms of cultural education, including preparation for college, can well be organized in large school units. As regards vocational secondary education, experience seems to demonstrate that this should, as a condition of effectiveness, be organized separately from general secondary education, partly because by the time a pupil is ready to enter a vocational school he must necessarily have made a more or less final choice of a calling, and

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as to the wisdom of which choice the vocational school, itself, should enable him at an early date to reach a decision. Not only should vocational schools be thus organized separately and apart from general schools, but, to a large extent, I am also convinced that individual vocational departments organized for particular occupations should not necessarily be closely connected with one another, but should, on the other hand, be intimately identified with the industries or other occupational fields for which they give preparation. In a city, for example, I believe that a school for printing might well be organized as close as practicable to existing printing establishments, and that a school for machinists should similarly be located where connections with the machine-shop industries could early be formed. In the same way, vocational schools for stenography, business, agriculture, and home-making should, as far as practicable, be respectively so organized and located as to cause the environment to contribute in the maximum degree to the development of the ideals and effective practice of the vocations taught.

You will understand, of course, that I do not advocate that vocational schools shall not give a portion of their programs to civic and cultural activities and training. My conception of a well-organized vocational school is one that has substantially the same hours per day, days per week, and weeks per year as the industry for which preparation is being given. But

within this period a moderate amount — say from ten to fifteen per cent — of the time might well be given to distinctively cultural activities and those forms of training for citizenship which have not already been naturally correlated with the vocational work of the schools.

Within the field of general or liberal education there is one needed development which has not yet been approached in any whole-hearted way in this country, and yet which certainly demands serious attention. It cannot have escaped your notice that a very large proportion of the young people making up the increased attendance upon our high schools are so situated that they will enter upon their vocational school work or, in lieu of that, on their practical life work, at or about sixteen years of age. Not only is this the prevailing practice, but on the whole it is a normal practice in most cases, and should not be discouraged. Now the existence of this growing class offers to the high school large opportunities to develop special programs of rounded liberal education suited to those young people who will probably discontinue attendance on schools of general education at or near sixteen years of age. Almost nowhere in our American system of secondary schools do we find well-organized courses, terminating at approximately sixteen years of age, and having some form of diploma or other honorable distinction, available for those who can give only that amount of time to their final education. This seems to me a

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decided deficiency, and one that should be speedily remedied through the creation in our large high schools of distinctively two-years' courses, each rich in English literature, English expression, hygiene, general science, social science, practical arts, and similar studies. In courses of this sort the study of foreign languages is not needed, nor should time be taken for the traditional algebra and geometry.

Many of our superintendents of schools feel that college admission requirements, particularly as found in Eastern colleges, still handicap unduly the development of high schools. But changes are taking place rather rapidly in this form of control of secondary education, and it is highly probable that within a few years the colleges themselves will have greatly revised their admission requirements. It is right, of course, for the colleges as now supported to insist that only students of good native ability and of good preparation shall be admitted to the study of the professions or of the higher branches of liberal learning. College education always imposes costs upon either the community or endowments considerably in excess of the tuition fees usually charged. College authorities have, obviously, the right as well as the obligation to require that this expenditure shall only be made upon those well qualified to profit therefrom.

On the other hand, it is doubtful whether college authorities have hitherto taken the wisest course to insure that they should receive students of the most

desirable quality and equipment. College entrance committees still cherish the conviction that the study of foreign languages and mathematics constitutes, on the whole, the best preparation for college work. There is no satisfactory evidence that this view is more than a belief, notwithstanding the long persistence of the tradition. It is probable that young men and women most ready for college work have been also most capable of passing prescribed examinations in these abstract and formal studies, and that unjustifiable inferences have been made as to the value of these studies in college preparatory work.

My strong impression is that the high schools need not long feel themselves handicapped by the demands of the colleges. With a more intelligent attitude on the part of high-school principals, and more scientific studies of the conditions which make for effective college work (which are even now in prospect), college preparatory programs can soon be so modified as to constitute but a small handicap on the high school that wishes to minister to a variety of the educational needs of youths from fourteen to eighteen years of age.

The superintendent of schools can exert his most useful influence on the development of secondary education by insisting that each and every variety of instruction and training which is carried on with the aid of public funds shall be directed towards quite definitely established and described goals, and that from time to time the efficacy of the means used in the endeavor to

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reach these goals shall be carefully tested. For example, both in the fields of liberal and of vocational education, I am strongly of the opinion that our school principals and teachers have not as yet formulated, in any satisfactory measure, the purposes which they should have in view. As a consequence, their adaptations of means and methods probably are haphazard and accidental to a large degree, if judged by genuine standards of efficiency. My experience has convinced me that every effort expended in the direction of inducing teachers and principals to think more clearly of the aims which should control in their work, and to preserve a questioning attitude towards so-called "faith" ends in education, will be worth while. It is for this reason that I should, for example, discourage discussion of so-called "general vocational education." I should endeavor to induce teachers to think of their work, not so much in terms of the mastery of subject-matter as in terms of the genuine and demonstrable values to the individual and to society, to be achieved through such mastery. Even in such specific subjects as modern languages and English, it is by no means clear that the rank and file of high-school teachers have generally either practicable or profitable ends so defined as effectively to guide them in the discovery and application of the most effective methods of teaching. In all these fields we have been accustomed heretofore to accept purposes on the basis of faith and custom. You may have noticed that in the literature relating to

secondary education a very large amount of attention is always given to the discussion of methods, and comparatively little to the discussion of purposes of the various subjects taught. I believe, as stated elsewhere, that ultimately we shall learn to state the purposes of all forms of secondary education in terms of the socially useful to be achieved, rather than in terms of the mastery of so much subject-matter — in other words, that we shall learn to indicate clearly wherein any given mastery of subject-matter actually “functions” in personal or social power.

II

To the President of a University:

I NEED not remind you that, however striking has been the development of higher education during the last quarter of a century in the United States, the revolution within the field of secondary education has been much greater. Reference to the statistics published by the Bureau of Education will show that in the public high schools of the United States alone are now to be found nearly a million and a half of pupils, and that the burden of supporting these high schools is a formidable one for the taxpayers. The extended discussion now being carried on as to the desirability of including in our system of secondary schools special vocational schools to prepare youths for occupations demanding skill or technical knowledge, and for which existing industrial and commercial establishments do not in themselves offer adequate preparation, exhibits a new type of demand to which our secondary schools must soon respond. In the field of the pedagogy of the subjects which have traditionally constituted programs of secondary education there has also been a large amount of discussion, and an increasing disposition to question all forms of purely traditional practice. Doubtless the department of education in your own institution has been a source

of disquiet to you and your faculty in this connection. You have probably found that department to be very ambitious, but also to be perhaps poorly equipped with proper scientific standards and methods to solve its own problems and to accomplish its own work.

The influence of the higher institutions of learning on secondary education constitutes a unique feature in American education. The nearest analogy to this influence from without is to be found in the external examinations of England, and of some Continental countries. Not only the standards of achievement, but also the means and methods of attaining these standards, have in American secondary schools been defined, to a large extent, by the higher institutions. Over these neither the faculties of the secondary schools nor the public authorities supervising them have had any considerable direct influence. Here, then, is a case of a group of institutions, often under private control, which have been able from the beginning to dominate the development of a type of public school organized to minister to public needs, and attended by a far greater number of pupils than can be found in all the colleges and professional schools.

The history of this dominance is simple, and, as a rule, reflects no discredit upon the higher institutions of learning. In the first place, in almost every State in the Union, one or more well-organized and definitely established colleges were in existence before a well-organized system of public secondary schools had been

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evolved. The higher institutions, therefore, had to deal with a multiplicity of agencies preparing pupils for their work. Some of the pupils came from under the hands of tutors, others from exceedingly small and weak schools in which special attention had been given to the one or two bright pupils preparing for college. Again, in most of the Western States, the first systems of public high schools established were simply weak extensions of the elementary school, and if it had not been for the standards imposed by state institutions and by colleges elsewhere, many years must necessarily have elapsed before these high schools could have obtained public recognition adequate to enable them to provide a satisfactory program of instruction four years in length.

Again, a large proportion of the teachers of secondary schools have always been graduates — commonly, recent graduates — of the colleges. Because a considerable proportion of teachers later enter upon other callings, the large majority of these teachers have been comparatively youthful, and have therefore been unduly influenced by the studies and methods of instruction which characterized their college courses. For this reason, also, it has been inevitable that the courses of instruction in the secondary schools should reflect very directly the ideals and methods prevalent in the colleges or other higher institutions of learning.

In the third place, within any given field of organized knowledge the abler minds have necessarily been

found in universities and other higher institutions. Hence, when any deliberate and coöperative attempt is made to revise or modify methods of instruction in an existing field of teaching, as mathematics, Latin, modern language, English, and the like, the representatives from the colleges, because of their maturity, confidence, and genuine ability, have almost inevitably dominated the discussion. The public has been prone to assume that because these men were experts in their fields of knowledge, they were also experts in the methods of teaching within those fields.

Great credit should, on the whole, be given to the higher institutions of learning of the United States for the contributions which they have made towards the development of secondary education. Nevertheless, it is clear that that assistance has not been an unmixed blessing in connection with the full development of a system of public secondary schools. Throughout the entire period of the development of the public high school (to say nothing of the academy and the Latin grammar school), there has been constant complaint as to the retarding and conservative influences exerted by the higher institutions. Some of this complaint has, of course, been due to the inability of the secondary schools to propose constructive programs which would satisfy public demand, and the ease with which they could shift the blame for this situation upon the colleges. Nevertheless, in a very real and fundamental sense, the higher institutions themselves have, through

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the conditions imposed by them on entering students, been responsible in large part for the failure of American secondary education to achieve a body of independent pedagogical knowledge and to define its aims in terms of the social needs which it should meet, rather than in terms of the teaching of certain subjects approved by colleges and higher institutions. We may now grant that a period of tutelage or intellectual vassalage for the high schools was necessary, and more or less inevitable. But the time has arrived when the higher institutions of learning in America should demonstrate their capacity for real leadership by taking whatever steps may be necessary, in view of the stage of development now reached by secondary education, to promote independence of thought and action on the part of all agencies contributing to the development of higher and more effective types of secondary schools.

The first step in this direction must, of course, be a clear assertion on the part of higher institutions that their responsibilities oblige them to impose reasonable standards of selection as regards all pupils coming to them. With reference to this fact there should be no misapprehension. Both as regards institutions supported by the State and as regards those supported by endowments there is a clear obligation that they shall not expend their efforts except upon persons of sufficient native ability to justify such expenditure, and of sufficiently ample preparation to undertake higher

education promptly and properly. With regard to these general principles there should be no debate.

But it is certain that the higher institutions of learning in America have never yet given adequate scientific consideration to all that is involved in thus selecting individuals possessing the real ability with which the institutions should deal. There is no evidence, for example, that the existing forms of written examinations now so much in vogue effectively accomplish this purpose. Neither is it evident, where institutions depend largely upon certification, that the standards of preparation in the particular list of subjects specified accomplish these purposes. It seems to me that the entire assumption, that knowledge of a particular group of subjects (leaving out of the question a very few essential "tool" subjects, such as English expression) constitutes a fair measure of fitness for college work, is open to serious question. There can be no debate, of course, as to the fact that a pupil who, after prolonged instruction, cannot "pass" in these subjects, thus gives evidence that he is not qualified for college work. The other conclusion, however, that preparation in these subjects constitutes the most profitable form of preparation for college work, seems to me to be largely without warrant, notwithstanding the antiquity of the belief. The higher institutions of learning should, in the very near future, give prolonged and scientific attention to the whole matter of the kinds and quality of preparation which

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must effectively underlie the work for which they are organized. Already departments of education, as well as departments of psychology, are found in most universities; these should be set to work upon the problems here suggested. Departments of sociology, also, should be able to contribute to the solution of these problems. Scientific standards and methods of inquiry for this purpose are even now in some measure available. Statistical investigations of value have already been successfully inaugurated in the effort to compare the attainments of students prepared under different systems of instruction.

In the mean time, an analysis of the general problem involved would be valuable. For example, the question might be raised at the present time as to whether a scheme of testing the fitness of secondary-school students for college work could not be organized along the following lines:

1. In the first place, wherever it can be demonstrated that a subject of study which has long been suited to the secondary school is also an essential instrument of college study, then the responsibilities of the secondary school for giving the student definite preparation in this subject should be clearly defined.

(a) It will, for example, be easily admitted that in almost all fields of college work certain definite abilities to speak, read, and write English are essential. When once these quali-

fications are definitely ascertained and formulated, it should be recognized as the duty of the secondary school to give such mastery as is required to meet these standards.

- (b) Again, if any particular department or field of college work imposes as an essential prerequisite, which the high school can readily meet, a reading knowledge of French or German, then preparation in this field, too, should become the responsibility of the secondary school. At the present time, I am not clear that any department of college work is so constituted. In many of them, of course, the possession of a reading knowledge of French or of German, or of both, is encouraged, but I do not understand that anywhere is work so organized as to make such reading knowledge a fixed prerequisite.
- (c) Again, certain departments of college work clearly require that the student shall be able to use as tools elementary algebra and plane geometry, as well, perhaps, as trigonometry and solid geometry. Where such a requirement definitely exists, as in the case of certain technical institutions, it should be clearly indicated and the type of facility required defined, in order that the preparatory school may definitely undertake this work.

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Are there other subjects which conform to the conditions here indicated? Certainly few, if any. It does not seem to me that any college work of which I have knowledge is so organized as definitely to depend upon Latin, Greek, history, or any branch of science as prerequisite.

2. In the second place, the higher institution of learning surely has a right to demand certain general qualities of mind in the student who seeks to avail himself of its opportunities. Unfortunately, these are nowhere defined at the present time. But that they can be so defined and tested as eventually clearly to indicate to the preparatory school its function in this connection ought not to be doubtful. To say that such qualities of mind are satisfactorily produced through the usual list of college preparatory subjects and tested in examinations is unnecessarily to restrict the field of activity of the secondary school. What is wanted by the secondary school is the opportunity to develop these qualities of mind as by-products of its work in fields otherwise profitable. The fields of knowledge and experience suited to this purpose may be quite remote, indeed, from any of the traditional subjects of the secondary school.
3. In the third place, the college probably also has an obligation to see to it that the student who undertakes college work has already had, within

due limits, a broad general education, including preparation for the exercise of civic duties, which the secondary school can readily give and which the college graduate, even though a specialist in some field, should be assumed to possess. Here again is a territory which has not been adequately explored, and for which the higher institutions of learning have given us almost no standards. It is still a region of education in which tradition rules.

This communication is addressed to you because I believe that in the future developments of secondary education in this country a more constructive and coöperative attitude on the part of the higher institutions of learning will be valuable, and mutually beneficial. The time has passed when the secondary schools of America should continue in a state of vassalage to the higher institutions. The obligations of the public high schools are even larger to that body of its pupils who will never go to the higher institutions than to the minority who do. The educational needs of this majority are very far from being met by existing programs of instruction. Just as the universities have developed, parallel to their colleges of liberal arts, a variety of vocational (professional) schools, so in the system of secondary schools must be developed, parallel to their programs of general or liberal education, vocational schools in the agricultural, commercial, industrial, and household arts fields. These must not be allowed mutually to interfere with one another, any more than do

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professional schools interfere with one another's development, or with the development of departments of liberal education. Probably we shall find that the instruction and training which constitute most effective preparation for college will, in some measure, have to be specialized within secondary schools. Secondary-school authorities, however, should not be asked to effect this specialization until such time as the college itself can clearly define and demonstrate the need and value of such specialization. For example, at the present moment I am convinced, on the general grounds of experience, that if in the typical high school the work of the first two years was so organized as to minister primarily to the demonstrated needs of those not fitting for college, it would be possible at the beginning of the third year to organize special courses for college preparatory students, and that during the junior and senior years, with a reasonable degree of specialized effort, the most effective preparation for college could be made, not only in small but also in the larger high schools. In view of this conviction, therefore, the immediate and direct influence of the college, now exerted on the programs of the first and second high-school years, seems to me not only superfluous, but a positive detriment to the work of the high school as a whole.

For a variety of reasons, I am strongly convinced that it would be to the interests, both of the higher institutions and of public education in general, if departments of education should be reorganized as

separate schools or colleges. The preparation of teachers for the public high schools, which has become, indeed, one of the large functions of the college of liberal education, as yet greatly lacks coherence of aim and organization of effort. I believe that the time has come when, in most of our States, a year of graduate work should be definitely insisted upon as a part of the training of the prospective high-school teacher. If this is required, it would be easily possible to arrange that at the close of the sophomore year college students looking forward to teaching should differentiate their courses to this end, and in part at least have their work come under the direction of the school or college of education. It does not appear to me that this would necessarily lessen the influence or responsibilities of the various departments of the liberal arts college. On the other hand, preparation for teaching as a career should be looked upon as no less important than preparation for the practice of medicine or law. And if we are to give organized preparation to this end, the reconstruction of departments of education, following the lines now established in two or three of the largest universities of this country, is clearly a necessity. It is obvious that when this is done, a few of the members of existing faculties will stand in a somewhat dual relationship. For example, there should be in each institution some one person who knows a great deal about the pedagogy of Latin teaching, and who should have connections with the department of Latin on the

one hand, and the department of education on the other, being, as I see it, primarily responsible to the latter. This dual relationship, however, is not an uncommon one, and a position involving it is easily capable of being developed into one of the highest influence in all that pertains to general education. In many of our universities there are now such connections between mathematical departments and engineering colleges, as well as between biological departments and the medical colleges.

In Western and Southern States, the State University is rising into prominence, and the question as to what shall be its relation to the system of secondary schools is still an open one. From some points of view, the argument can be favored that the State University should be the directing agency of the system of secondary schools, through its inspection and through its training of teachers for these institutions. I am, myself, convinced that this will eventually prove an unwholesome and dangerous relationship. It could easily bring the State University into the position of shaping all secondary schools so as to conform to its own image and to minister to its own particular needs. I now incline to the view that the system of secondary schools should be primarily inspected and supervised by authorities responsible to the State as a whole, under the supervision of which the State University, itself, might, if necessary, also occupy a position. A relatively large degree of independence is, of course, essen-

tial to a university, and notwithstanding the fact that it receives its support from the State, a large degree of freedom should be allowed to it. Whether, therefore, the system of supervising secondary schools and the State University itself should be under some state authority, I am not prepared to say, but in any event the State University should not be placed in a position of oversight or responsibility for the secondary schools.

III

To the Chairman of a Committee on College Admissions:

EVER since you were given your present responsible position as chairman of the committee on admissions you have realized, of course, with increasing anxiety, the state of dissatisfaction that has existed with regard to college admission programs, both as constituted and as administered. In the pressure that has been brought to bear upon you and your committee there has been, at times, an element of unfairness, since your position obliges you to conform to certain standards that have been imposed upon you by the institution as a whole, and also by traditions which you do not feel yourselves able to change.

In another letter, addressed to the president of your institution, I have discussed at some length certain general matters of policy underlying the relationships existing between the secondary schools of America and the higher institutions of learning. There are a few considerations which might well be called also to your attention in your present position, because it is certain that you can use your influence to effect changes which, even now, would be of considerable help.

These suggestions are made with a full realization of the marked developments and changes which have recently taken place in the field of college admission

requirements. For example, it is recognized that throughout the South and West, and to some extent in the East, the system of admission on certificate has tended to replace the system of admission upon the passing of certain written examinations. Admission on certificate certainly impresses the public as being a more equitable method than admission by examination. Again, it is noteworthy that in institutions willing as yet to admit only on examination, and in cases where certification is not practicable, decided improvements have been made in the direction of uniformity of examinations and of standards of marking. The work of the College Entrance Examination Board in this connection has been especially important. The work of other agencies, such as the New England Association of Teachers of English, has also been very helpful. The change in the Regents' examination in New York State, and in the College Entrance Examination Board, whereby representatives of secondary schools have been "co-opted" (to use the English word) both in the preparation of questions and in the preliminary and to some extent in the final scrutiny of papers, has been also an important step in the right direction.

In making the suggestions given below it is recognized that the paramount responsibility of the college as regards admissions is to see to it that students admitted to college shall be, in the first place, those most qualified naturally to pursue college work with profit,

and in the second place prepared as fully as practicable for this work. In the discharge of this responsibility, however, it is also incumbent upon the college to adopt such means as will in the maximum degree promote the efficiency of high and other secondary schools, and particularly as regards the educational needs of thousands of other pupils who are not going to college. It seems to me, therefore, that both as regards institutions admitting on certificate and those admitting through examinations, it would be at the present time possible to make a compromise between the so-called "Subjects of study" prescribed, and those which are left to the discretion of secondary institutions, so as to insure a maximum of efficiency on both sides. †

Let me assume an extreme case. Suppose that the college should restrict its prescriptions to eight units, on the condition that these eight units of work should represent only study done during the last two years of the preparatory school course, and that in addition thereto satisfactory evidence should be presented by the high school, in the record of any individual pupil, that work done during the first two years was of a generally profitable nature, and part of a well-defined secondary-school program. I see no reason at the present time why the institution of higher learning should not confine its tests entirely to work done during those last two years, leaving the secondary school free to determine what might be the most profitable instruction for the first two years. The

two cases in which conflict would undoubtedly be found would be in mathematics and foreign language. In these cases, the examination of the college could surely be confined to advanced stages, thus insuring the performance of satisfactory work in the earlier years of these subjects, without, however, having the college assume the responsibility of defining the exact character or the scope of this work.

It seems to me that it is administratively practicable, at the present time, for the secondary schools to accomplish substantially all that public opinion demands in the way of improvements in their work through being allowed to devote the first two years of the ordinary high-school period to such work as the high-school faculty shall determine to be of most value. This will bring the majority of pupils to sixteen years of age. By this time most pupils will have decided upon their future careers, as far as attendance or non-attendance upon higher institutions is concerned, although of course some will, prior to this, and even as early as the age of twelve in a well-developed school system, have made elections which will in some measure affect the range of their future studies.

If now, at the close of two years of high-school work, pupils are enabled to elect various courses, some of a strictly vocational character, some continuing the general education without reference to college, and others preparing specifically for various types of college work, I see no reason why the higher institutions of

learning should not, by suitable examinations, devised primarily to test the power of the student rather than his definite knowledge, amply satisfy themselves as to the pupil's ability to enter upon various college courses.

It would seem to me entirely possible, in almost any field of preparatory study, to devise tests of such a character that the effects of special or technical previous preparation would not operate as a handicap to the student in demonstrating his qualifications to pursue advanced studies. Why should not your committees give more extended study to the psychology of examinations, with a view to devising tests which shall really be tests of power, and not merely of memorized knowledge or of skill obtained through a system of cramming-tests on previous examination papers? Possibly in the framing of admission examinations you might go farther, also, in the way of making sharp distinctions between certain sets of questions which should be answered, perhaps, purely out of accumulated knowledge, and others with reference to which no specific preparation could enable the student to meet the tests imposed. I see no reason why some of these tests should not be anticipatory of the work to be done in subsequent courses, rather than merely reminiscent of work previously taken.

One further suggestion: The custom is growing, I believe, of bringing into examining bodies representatives of the field of secondary education. Individual institutions which still maintain entrance examina-

tions do not do this, I am informed, but I see no reason why, within limits, it should not be done as a means of bridging the gap as regards mutual understanding which now exists between secondary schools and colleges. If this were done, I would suggest that such representation be not confined to the largest and best organized schools, but that smaller high schools as well be brought into coöperation. I am inclined to believe that some of the best work in this country is done in comparatively small schools, but these must, of course, be subject to the limitations of support and opportunity under which they operate, and they may be often compelled materially to vary their standards on this account. These schools often have as pupils young men and women of unusual capacity for self-development, and of unusual initiative. No higher institution of learning seeking to render its best service to society can afford to neglect material of this character. The larger high schools, where each subject not only is taught by a separate teacher but is frequently organized under a group of teachers, possess facilities for responding to college standards quite impossible to small schools with limited resources. And yet it is a serious question whether the graduates of these large high schools will, on the average, two years after undertaking their college work, stand out superior to the pupils coming from the smaller high schools. A recognition of these necessary differences might prove of profit to the college.

IV

To a College Professor of Education:

It seems to me that departments of education in American colleges and universities have contributed in a large measure to the revolution which now seems to be in progress in secondary education in this country. A part of this contribution has been of a negative nature; that is, it has consisted of rather searching criticisms of the traditions of education, no less than the making of suggestions as to possible substitutes for the traditional aims, studies, and methods of instruction in high schools. It is safe to say that almost every instructor in departments of education in American colleges and universities is regarded as an educational radical. These men and women have manifested considerable impatience toward educational traditions, and have been especially critical of the psychological doctrines upon which the historic programs of study are, or are supposed to be, based. Then, too, there has been a steady tendency on the part of these men to insist on the possible high values of studies now rarely found in secondary-school curricula, such as social science, applied art, and vocational subjects. In these departments we find, for the first time, the beginnings of a scientific attitude towards education as a special field of study. Every

one, certainly, who is interested in the right reorganization of secondary education must look hopefully to departments of education in American colleges and universities for guidance in the future.

The history of the development of these departments is hardly less interesting and suggestive than is the history of the development of secondary education, itself. The oldest of them dates back little more than one third of a century. They were usually first organized as branches or departments of philosophy, and have had, during their earlier years at least, a precarious existence. It was perhaps inevitable that the first subjects taught in these departments should have consisted largely of material taken from the history of education and the so-called "philosophy of education," which subjects certainly possessed little enough in themselves of a distinctively contributory nature for our modern problems. But after all, the important thing in these departments was usually the man in charge of the work. It is noteworthy that, from the beginning, our departments of education usually identified themselves much more intimately with the general public-school administration than with the other departments in their institutions. In fact, I am inclined to believe that in a great many instances the initiation, and later the expansion, of these departments has been due more to pressure from without the institution than owing to any clear-cut conviction, developed from within, that such a department was necessary.

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It has often been the case that departments of education have been the first clearly to face the problems which should primarily claim the attention of the college. I refer, in the first place, to the training of secondary-school teachers, and in the second place to the performance of constructive and research work in the field of secondary education. I need not remind you of the enormous development of American secondary education during the last quarter of a century. Even more rapid, however, has been the growth of the demand for college graduates as teachers in these secondary schools. There are now in the public high schools of America alone nearly fifty thousand men and women employed as teachers, a very large majority of whom are college graduates. These constitute a very respectable profession. The colleges have been proud of the demand made upon them for teachers, but only rarely have they been willing to concede the importance of giving these prospective teachers adequate special training for their work. All have long labored under the old assumption that knowledge of subject-matter sufficed to make good teachers in any field.

Now, it seems to me that departments of education, if they had been wise, would first of all have claimed the field of secondary education as their special territory, and would have done a large amount of work in mapping out its problems and in defining, not only the particular contributions which they, themselves,

should make to it, but also what should be expected from the other departments of the liberal arts college coöperating in the training of special teachers for high schools. In looking over the catalogues of various colleges and universities, I find surprisingly little attention, even yet, given to this, as it seems to me, clearly defined field of effort. Every year thousands of graduates of our colleges and universities enter the field of secondary education. They have all the prepossessions that their own special departments can give them. In departments such as that over which you preside, they have taken courses in the history of education, general psychological problems, and so-called "principles of education"; but it seems to me that in surprisingly few instances even yet are they brought face to face with what have surely been defined, during the last decade, as the fundamental problems of secondary education.

¶ I am furthermore impressed with the surprising scarcity of literature of a fundamental nature dealing with the problems of secondary education. True, we have had a wealth of articles contributed to journals, and a well-edited *School Review* and some other journals of similar nature have accumulated a very cyclopedia of miscellaneous opinions, descriptions, and proposals in this field. But, barring a very few exceptions, we have no books dealing in a fundamental way with what are now clearly perceived to be the real problems of secondary education.

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Let me instance the widespread movement for the development of vocational schools. It is coming to be seen that this new movement is a fundamental one, arising in response to a genuine social need. I am of the opinion that we shall have vocational secondary schools widely developed throughout the country, and for almost all types of occupations, within a very few years. I regret to say, however, that departments of education, while they have been acquiescent and hospitable to the new developments in the main, have contributed almost nothing of a positively constructive nature, so far as I am able to learn. Business men, superintendents of schools, teachers of manual training, and others outside the colleges have in the main been responsible for the new developments.

Again, take the field of training for citizenship, or the field of the broader moral education. Here, too, I am convinced that we are in the presence of a widespread social demand for new and additional types of training and instruction for adolescents. Nevertheless, departments of education throughout the United States seem to me as yet to be contributing in article form very little, indeed, to this important field of educational thought.

I suppose that the heads of many of the departments of education would contend that the whole of education is their province, and that they are under no special obligation to give exceptional attention to the field of the secondary school. With this position

I can hardly agree. I recognize that our departments of education must not only do their share in the training of secondary-school teachers, but must also maintain courses for persons equipping themselves for administrative fields. Nevertheless, the first territory is very much larger than the second, and in some ways much more important. I have no sympathy at all with the disposition in some quarters, on the part of colleges and universities, to invade the field of elementary education, except in so far as they can deal competently with this in the case of those of their students who are likely to be employed as administrators. The normal schools of America constitute a well-defined field of professional education which, at the present time, at any rate, cannot profit from closer affiliation with colleges and universities. On the other hand, in view of what has been said above regarding the large responsibilities of our colleges in training secondary-school teachers, and in view of the fact that most of the departments of liberal arts in the colleges are, themselves, closely in contact with various phases of secondary education, it seems to me that here is the first and most important field with which departments like yours should concern themselves. Your large problem should be to enable prospective high-school teachers to find the fields in which they can be of most service, and to enable them to master the methods by which such service can be most effectively rendered.

As I interpret them, the two fundamental problems in secondary education to-day are these:

1. What are the most valuable kinds and quantities of training and instruction which society should give to various groups of young people of approximately fourteen to eighteen years of age?
2. How can these forms of training and instruction be given with a maximum of efficiency and with a minimum expenditure of time and energy?

A statement of the problems thus involves, as you readily see, questions reaching back of all our formulated and traditionally accepted subjects of secondary instruction. It means that we must devise schemes of educational values in which the mastery of a given body of knowledge shall be merely a means, and not an end.

It is certain that we shall be able to formulate and attack the various problems differentiating from those broadly stated above, only in the light of a well-developed social economy. Our knowledge of the underlying sociology is as yet, indeed, fragmentary and imperfectly organized. Nevertheless, as our knowledge of the principles of sociology is being applied to the promotion of human well-being, we are, to a constantly increasing extent, evolving what might be called a fundamental social economy — that is, an appreciation and knowledge of what are genuine social values, as well as some conception of the most effective methods of realizing them.

Now, broadly speaking, all education is but a phase of social economy. It is a means of increasing the efficiency of peoples, and of lessening waste. All educational values must be true social values. All real social utilities that can be achieved by educational means should be the concern of our educational agencies, even if these do not directly provide them.

But how far, would you contend, does all of the available literature of secondary education carry us into the field of a genuine social economy? To what extent does that vast accumulation of guesses, notions, and theories which to-day constitutes the literature of secondary education, assist us in really understanding the ends which an effective system of education should realize? Again I refer to the very recent movement for vocational secondary education. This movement has been hampered and confused by our failure to distinguish various forms of educational values and as a consequence our utter failure clearly to differentiate the administrative and educational means by which they are to be realized. Even our college departments of education, it seems to me, are still very much confused as to the relation of so-called "cultural" to vocational education. They still seem to assume that some form of general training, some composite type of appeal, or, as I sometimes think, some hocus-pocus or panacea will accomplish all of the educational ends that are worth while. They fail, it seems to me, to realize that various specific educational ends, each no

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less worth while than others, may have to be attained by very special exercises and educational devices.

In view of the history of our departments of education and the tremendous contributions which they have already made, you will readily understand that I am not disposed to be critical as to past accomplishments, but rather extremely solicitous as to present and future developments. In some cases it seems to me that I detect signs that departments of education are becoming conventionalized and self-satisfied, quite like other departments in colleges and universities. If this is so, then we shall have little to expect from them in the future, because the field of secondary education particularly is so greatly in need of reorganization that almost all accepted traditions will have to be approached critically and with a readiness to discard them, if the new conditions are to be effectively met. Because of this, I take the liberty of suggesting some of the problems that it seems to me your department should especially consider in the next few years.

First, it is my belief that every department of education in American colleges should maintain, constantly, an inquiring and critical attitude as to the educational values of the subjects which have become traditionally identified with secondary education, or which are now seeking recognition. This form of inquiry, while apparently destructive, is, on the whole, permanently constructive, because, even where its results are not immediately apparent, there will be a

gradual effect in the reshaping of the work of the various college departments of liberal education and in developing in prospective teachers a more inquiring attitude as to the ends which they wish to achieve. In any course dealing with problems of secondary education, the instructor can consistently maintain a questioning attitude as to the actual educational values of Latin, French, German, physics, history, English literature, commercial law, manual training, agricultural science, etc., as now taught. In every case he may expect always to obtain a large assortment of opinions as to the educational values of these various subjects, based, of course, largely upon tradition and hasty assumption.

Pursuing this form of inquiry, he can endeavor to ascertain what is believed regarding the educational values of these subjects for particular groups of students. For example, assuming for the moment the traditional view as to the value of Latin, should it be recommended as a study to pupils who will necessarily leave high school at sixteen years of age? This form of inquiry is capable of almost indefinite expansion.

Again, it might be possible at least to suggest the beginnings of inquiry as to the values of studies as shown in the cases of those who have had any given amount of training. For example, in our high schools pupils study a certain amount of science. What is the residuum of knowledge which they possess five years after leaving school? They have studied mathematics.

What effects of such study, if any, are traceable in the adult? They have studied English literature, especially of the classical varieties. Are enduring interests in these fields to be found?

In the second place, and more particularly in connection with subjects whose probable educational value may be readily accepted, as, for example, English expression, algebra for prospective engineers, etc., there might constantly be raised questions as to the actual educational values of different methods of instruction employed. This procedure, too, is capable of almost indefinite extension, and inquiry in it should, where practicable, involve the coöperation of at least one instructor from the department concerned.

In the third place, one of the largest fields of opportunity for useful work which I foresee for your department is that of analyzing, from a study of social economy, the various types of useful ends which should be achieved through the systematic education of adolescents. For example, within the field of physical education we have as yet made but beginnings in this direction. Again, I am confident that in the broader moral, civic, or social education our efforts at the present time are fragmentary and ineffective to a degree almost unrealized. Already in the field of vocational education you have a valuable body of literature from which to draw, but nevertheless, even here your department should be further scrutinizing the educational ends that are worth while, with a view to sug-

gesting the educational procedures by which they can be realized.

Departments of education have had a somewhat stormy development, but I think a part of your trouble has been due to your failure to organize your work definitely on a professional basis. In another letter, addressed to a college president, I am urging the desirability of constituting a separate college of education, the functions of which should be no less clearly defined than those of an engineering college, or a medical college. The chief obstacle to such a development at the present time, I am convinced, is the lack of confidence on the part of the faculty of your institution in the ability of your department properly to organize and sustain such a college. There are other obstacles, of course. Such a college as this would necessarily utilize, in large measure, the work of the various departments of the liberal arts college, and there is naturally reluctance on the part of these departments to surrender any of their prerogatives. From my point of view, the development of colleges of education in all our larger institutions is inevitable. In fact, I believe that within a very few years no person will be acceptable as a teacher in a high school who has not completed a course in such a college, preferably including a year of graduate work. I shall do all in my power to promote the development of such colleges; but in the mean time it is still a large responsibility of your department to define in clear-cut fashion what contributions you can

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make basal to the more effective training of secondary-school teachers, and also to the work of research in the field of secondary education. I believe you would gain in public confidence if you would make these two fields the center of your work.

V

To the Principal of a General High School :

IN writing this series of letters to teachers and others connected with secondary education, I find myself constantly returning to the thought that, in very large measure, the principal of any secondary school is, after all, the key to the situation as regards all needed reorganizations of the aims and the methods of secondary education. We may expect important contributions from many other quarters — from superintendents of schools, college presidents, chairmen of admission committees, college departments of education, writers of textbooks, and teachers in our high schools; but the carrying into effect of varying proposals, either for modifications of existing courses or for the development of new aims and methods, must be effected largely through the principal in every case. He is the man who can best receive suggestions from outside sources as to aims, and who, in addition, can best direct the work of teachers in the reorganization of the means and methods which they employ. It is my desire, therefore, to discuss in this letter to you a few of the problems which will, I believe, have to be solved during the next few years by every progressive principal of a general high school.

There is no doubt in my mind that we must, hence-

forth, interpret secondary education much more broadly than has been the case hitherto. We shall have to make it include practically every form of constructive training and instruction to be given to young people between the ages of fourteen and eighteen or nineteen — if not between the ages of twelve and nineteen or twenty. For a large proportion of young people, this education must at some time during this period become quite distinctively vocational. For others, the entire secondary-school period will be devoted mainly to the obtaining of a broad general, or liberal, education. For some, the period exclusively devoted to liberal education should terminate at fourteen or sixteen, to be replaced, either by systematic vocational education, or entrance upon productive work. We shall also, doubtless, soon make extensive provision in our schools for the continuance, on a part-time basis or in evening classes, of the vocational education of those desiring it, just as, equally, we shall make provision for the further liberal education of those manifesting wants in this direction. In a great variety of ways we shall be obliged to make our systems of training and instruction flexible and adapted to the needs of groups of young people of widely varying interests, capacities, and needs.

But I am convinced that we shall preserve, and probably still further define and emphasize, present distinctions between liberal education, on the one hand, and vocational education, on the other. Every

step in the direction of defining educational purposes more clearly, and, as a consequence, devising effective means and methods of realizing the aims thus defined, makes clearer the fundamental necessity, as I see it, of a distinct administrative separation between the agencies of vocational education and of liberal education. This does not mean at all that during the period devoted chiefly to vocational education the pupil will receive none of the training and instruction which is hereafter defined as making for the ends of "liberal" education. It does mean, however, that in the vocational school he will give the working day chiefly to learning a vocation, very much as he would give the working day to the pursuit of his vocation if he were regularly employed. We do not expect a man, whether at twenty-five or fifty years of age, to give all of his time to his vocation. Neither do we expect, however, his cultural and civic interests so to mix themselves with his pursuit of his vocation as to distract him in his calling or to impair the efficiency of his efforts therein. We do not want him to take his shop into his home, his club, or his holiday diversions. We do not even wish him to bring his shop too greatly into his politics. He is a man of family, of culture, and a citizen, on the one hand, and a worker, on the other. Distinctions of this sort, I am confident, will soon generally penetrate into all our plans of education. We shall find that any attempt to bring within the hours of the working day periods perhaps forty-five minutes

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in length now devoted to the ends of liberal education, and again to the ends of so-called vocational education, simply result in a hodge-podge that makes neither for vocational efficiency nor for the power that we comprehend under the term "liberal education."

This letter, therefore, is addressed to you, as the principal of a high school, the controlling purposes of which are to be found in liberal education. The first problem, even yet that here arises is as to what constitutes liberal education. We have many traditional definitions of this, but I find that none of them are so definite, comprehensive, and "functional" as to enable us, on the basis of the requirements of the liberal education as thus defined, to choose among the various means and methods by which it can be produced. It will, therefore, be a large part of the work of members of your profession, as well as of others, in the near future to give to the world much more comprehensive definitions of liberal education. We have allowed ourselves to fall into many foolish and indefensible positions, even in recent years, in this respect. For example, I suppose that many of those devoted to the traditional view of education would still insist that the study of Latin, as carried on in our ordinary high schools, contributes to liberal education. They would make similar claims for such subjects as algebra, ancient history, and physics. On the other hand, there are those of us who associate liberal education much more with the accumulation of ideas and the kindling

of ideals in connection with such fields of human achievement as literature, art, science, and the economic and social conquest of the forces of nature.

I believe that eventually we shall obtain our most satisfactory theory of liberal education through making a fairly comprehensive and sharp distinction between those activities which belong to men in connection with their specialized and productive occupations, on the one hand, and, on the other, those which belong to men in their capacity of utilizing the resources which the material and social environment offer. This distinction, to my mind, is important at the present time because of constantly increasing tendencies toward specialization of occupational life, whereas, from the standpoint of utilization, the whole tendency of our education is to place at the disposal of even the average man, as a consumer, so far as practicable all the products of historic and contemporary achievement. For example, we expect a man, on the productive side, to be a machinist, or a physician, or a farmer, or a bookkeeper, or a specialist in some form of political service, — to enumerate only a few possible occupations. On the other hand, we expect every man to utilize, in greater or less degree, the products of poets, artists, scientists, historians, physicians, political leaders, etc., whether these be of the past or of the present.

From this point of view, therefore, the primary function of each vocational school is to minister to the requirements of that special group of individuals who

desire to equip themselves effectively to pursue a given occupation. The functions of schools of general or liberal education, on the other hand, whether these be elementary schools, high schools, or colleges, as well as of the various cultural agencies playing a part in later life, are to enhance the capacity of men to utilize, according to high and effective standards, the products and services that for them are becoming more and more universally available. To this end, the school of liberal education must undertake two fairly distinct types of work. It must first give command of those instrumentalities and powers which are quite generally to be employed in an executive capacity as a means of utilization. Our elementary school must teach our children to read and to write, up to certain standards of proficiency, in order that they may have the opportunity to utilize the resources which the social inheritance places at their disposal. In the second place, a large additional function of the school of liberal or general education is not so much to produce ability to *do* in any given field as to produce capacity to make wise choices and sound discriminations, these to lead to wise utilization. Here, then, education which results in *appreciation*, rather than the ability to *execute*, represents the goal. In the fields of literature, we do not expect to make writers out of the vast majority of our pupils. We wish, however, to make them all appreciative of, and discriminative as to, good writing. Similarly, in such specialized fields as medical service,

various forms of political service, the manufacture of economic goods, in the field of general education, we have no intention of producing the ability to *do*; what we chiefly desire is to give general capacity for wise choice.

Coming now to the field of the so-called "liberal high school," it is obvious that outside of the field of physical education (which is a topic to be treated by itself), the chief purposes to be attained may be grouped under the two heads, of cultural and social education. In the first case, it is the purpose of the school to enhance the ability of the individual to utilize, as an individual, the available cultural resources of our age, including all of those which make for the development of intellectual and æsthetic interests and other capacities that seem to be genuinely worth while. On the other hand, it is also the function of the school to produce the habits, knowledge, appreciations, and ideals which are identified with wise moral and civic living. These involve, first of all, valuable habits and ideals of social conformity. They involve, second, a sound capacity to make choice of political service in all of those fields wherein, under our modern system of group living, we act coöperatively as employers of the various forms of political service needed in society.

It seems to me that it will be possible, under the standards referred to above, progressively to reconstruct our high-school programs to the ends of a more genuine liberal education. I believe that at the pres-

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ent moment there is no educational agency that is so much under the spell of tradition, taking account of its prescribed as well as of its optional studies, as the public secondary school. Almost all its aims and standards, as well as many of its methods, are purely the products of selection in the past, conserved by adherence to quite artificial psychological standards in more recent years.

Broadly speaking, for example, we do not to-day know why, in any definite way, we attach such importance in the high school to the studies of algebra, Latin, ancient history, and various other subjects, as usually presented. About all that we can prove is that at some time in the past some of these studies were of actual value, or that more recently a considerable group of people became convinced, whether reasonably or not, that they possessed value for some educational purposes. It is interesting, in reading the history of education, to find how positions as to these questions have become transformed. At one time, for example, the study of mathematics was largely insisted upon for its utilitarian value. As, however, the study was prescribed for an increasing number of students, including girls, it became easier to defend it on the grounds of its value in mental training. Similarly, Latin was undoubtedly once a valuable tool of general learning. To-day, when it can no longer be defended as such, its advocates still insist that as an instrument of mental discipline it is unequalled even by the study

of modern languages, or by the study of English itself — a contention which I believe must appear to many sane students as more or less preposterous.

More recently we have seen introduced into general high schools a variety of commercial and practical arts studies, the introduction of which was undoubtedly supported by taxpayers and others because of their supposed utilitarian value. Now, however, in many cases these studies are defended by teachers and school principals on the ground of their disciplinary or general educational value, as distinguished from their vocational value.

In general, therefore, I believe that, when approached from almost any point of view, the present high-school curriculum, both as regards its aims and its commonly followed methods, shows the effects of tradition and unscientific thinking to a marked extent. It is a field wherein custom and empirical knowledge still play a very large part. I need not now go into a history of the reasons why this condition is so. It is developed in part in other letters of this series. The college has played its part in three different ways, — first, through its admission standards; second, through its training of teachers; and third, through the fact that textbooks and manuals have been largely influenced by college men. Again, the inability of high-school teachers and principals to develop concerted action as to their work has been influential in retarding the development of new and more helpful concep-

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tions of liberal education. This, however, is not a profitable matter for discussion at the present moment. The facts remain, and it is our business now to raise the question as to how more profitable forms of development may be achieved.

VI

To an Assistant Superintendent in charge of Vocational Education :

THERE is a growing practice in our large cities of creating the office of assistant, or deputy, superintendent, in charge of vocational education. This is directly in the line of efficiency, and I believe that the time will come when, systems of expert county supervision having been established for our rural areas, there will also be found in each county, or other similar area, an assistant superintendent in charge of the agricultural, home-making, and other forms of vocational education which will be found in such communities.

The assistant superintendent in charge of vocational education, whether in a city or a county, finds himself confronted by almost innumerable problems, as to many of which he has few, if any, precedents to guide him. We now clearly recognize that vocational education — meaning thereby education directed quite purposefully and specifically towards equipping youths, in whole or in part, for the pursuit of a useful occupation — does not, and cannot, consist simply of modifications of the historic types of education; it is in reality a new and distinct type superadded to those hitherto existing, and for the purpose of meeting definitely new social needs. Historically speaking, indeed,

the world has always had vocational education, carried on through and by such institutions as the home, the workshop, the farm, and the commercial establishment. The new social demand is in reality not for vocational education as such, but for new agencies through which this indispensable form of education can be organized and made effective. This demand arises because the old agencies as now organized are either no longer adequate to do the work required, or because the current demands for vocational education, as in the case of agricultural education, are so essentially different from the forms with which the historic agencies concerned themselves as to require the creation of new agencies for the purpose.

In some departments of vocational education, notably the commercial and home-making, persistent attempts have long been made to utilize substantially all of the pedagogic forces and instruments of administration that have become traditionally associated with general or liberal education. As a consequence, it is even yet a serious question whether commercial and home-making education are at all efficient — that is, in the sense of giving any considerable amount of genuinely practical training in return for the money expended upon them. It is difficult, if not impossible, in many cases to distinguish, as regards results, between these forms of alleged vocational education and the general education carried on through the same subjects in these or other schools.

I think the conviction is steadily growing that any form of vocational education, to be effective, must develop its own teaching processes as well as means of administration, and that, on the whole, both as to methods of instruction and instruments of administration, it must be quite independent of general or so-called "liberal" education. This must be so because of the fundamental unlikenesses between the ends or purposes of liberal education and the ends or purposes of vocational education.

It is now generally conceded that any form of vocational education, as a condition of effectiveness, must closely identify itself with the processes, standards, and requirements of the occupations for which training is given, as these are organized and administered for commercial purposes. No longer can schoolmasters, simply as such, assume that they know what should be offered as commercial education, or industrial education, or home-making education, or agricultural education. They can become helpful advisers in these fields only by keeping themselves in close contact with the practical aspects in the conduct of these various occupations. In fact, it is now certain that the persons immediately responsible for the development of teaching devices, equipment, and organization of courses of instruction, as well as the offering of instruction in vocational education, must themselves be experts in the occupations for which training is being given, at least to the extent that their services would, if available, be readily sought by employers in these fields.

✕ In America the public has reached the point where to-day it freely and willingly accepts the principle of public support and control for any and all forms of vocational education. From our state universities with their professional schools, down through the fields of secondary agricultural, commercial, industrial, nautical, and home-making education, abundant public money can be obtained for the conduct of vocational schools, provided we can convince the taxpayers that such money is being expended wisely and with good effect. Society now looks upon vocational education, not only as one of the best forms of social insurance, but also as a very valuable form of social investment from the standpoint of laying out funds which will later bring to the community at large generous returns. The State is disposed to regard vocational education, not only as a means of reducing to the minimum the proportion of unemployed which it has in its midst, but also as a means of promoting the productive capacity of each individual to an extent which will enable him to assist the State in the future in more amply supporting all forms of education than it can do at the present time.

The problems, therefore, which now most intimately concern us are chiefly those involved in rendering vocational education thoroughly effective. Here are no easy tasks. Most of the pedagogical problems involved are being approached for the first time. It is true that we Americans have obtained many sugges-

tions from abroad, but practical devices and working methods can be borrowed only to a comparatively slight extent. For the future our American communities must work out the problems of vocational education by themselves, with, of course, the largest possible coöperation between community and community.

The experience of the last dozen years has brought about a fairly common acceptance of certain principles of vocational education, it seems to me, notwithstanding the fact that the actual application of these principles in practice is as yet not very far-reaching. The first of these principles is, in brief, that all effective vocational education requires that the learner in any particular department shall, from the outset, be largely concerned with the working-out of practical problems and the doing of productive work in the more elementary and simple stages of the calling or vocation for which he is receiving training.

This principle involves the acceptance of a large amount of the method of training heretofore characteristic of apprenticeship as a form of vocational education. It means that the learner at first learns chiefly through doing, and that his doing is associated largely with the practical problems characteristic of the occupation for which he is being given training. It means, among other things, either that the learner shall spend part of his time working in actual establishments where the world's productive work is being done and that he shall come to the school for a part of his time,

either in the day or the evening, to obtain such additional instruction, training, and practice with new instruments as the stage of his development may require. If practical experience is not obtainable in this way, then the school itself is under obligation to obtain control of the necessary instrumentalities whereby it can set the learner at work on productive projects appropriate to the calling and to the stage of development reached by him. If, for example, an industrial department cannot have its students working in corresponding industrial establishments, then the school itself must build up and equip a productive shop in which the learner can spend a large proportion of his time on work the products of which will eventually find their way into the market, and for which work he may receive, at any rate in part, some compensation. The difficulty of providing agencies of this sort for some forms of vocational training is very great. In other directions the difficulties are not large ones, once the principle is sincerely and honestly accepted. This principle is already exemplified in various forms of agricultural education and industrial education, both for boys and girls. Commercial education and home-making education have so far realized but little of the possibilities of this method of approach.

As a method of organizing practical work, it is now accepted by most educators that the "project" or the educational "job" (that is, a unit of productive work which for the learner involves not only the require-

ments of productive activity, but enables him to acquire in connection therewith additional insight into applications of science, art, mathematics, etc., looking to rounded training for his occupation) is the most satisfactory unit. Hardly any occupation of an agricultural, commercial, industrial, or home-making nature but presents elementary phases upon which these units or projects may be based. The problem of the future in this connection is to take each occupation, towards which boys and girls are to be trained, and to analyze it carefully, always utilizing the experience of practical men in the calling, in order to find the simple jobs which can be utilized as "projects" of a definitely educational nature.

The problem next in importance to be confronted by those who are organizing our vocational education is that of relating so-called technical instruction to the practical work followed. It has proved comparatively easy to give, even in technical schools, or so-called "vocational schools," logically organized courses in such technical subjects as drawing, mathematics, the various sciences, applied art, etc. Experience, however, has demonstrated the comparative futility of teaching these courses to a large proportion of those young people who will become the rank and file of workers in the trades and other wage-earning pursuits. For students who have no unusual mental powers, logically organized courses on a more or less theoretical basis are comparatively useless. Technical instruction can be of

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service for such students only when closely correlated from day to day with practical instruction, and where the instructor is, himself, under obligation to carry into practice each bit of theory as learned. More effective still is an educational policy whereby the student first encounters in his practical work the necessity for some specific training in a related technical subject, and thereupon is offered the opportunity to take it up. In this field lies, for the next few years, a very large opportunity to organize in definite form the requirements of any particular calling with the object of showing what is the related technical instruction required, and how it shall be correlated with the practical work or projects being followed in the shop or on the farm. Only in this way shall we be able to get away from certain ancient superstitions as to the value of such subjects as algebra, mechanical drawing, and physics in various occupations and trades which men and women follow.

When we shall have organized vocational education in our urban communities somewhat thoroughly, we shall find, I believe, that such organization admits and requires almost indefinite flexibility. We shall find that many of our prepossessions regarding the amount of time to be given to a course of instruction toward a given vocation will be proved quite groundless. There are, undoubtedly, some trades for which four years of systematic training are none too much. There are also very many occupations for which a few months, or

even a few weeks, of quite systematic training in a good vocational school may prove ample as an introduction to the profitable pursuit of the calling.

Furthermore, we shall not long hold to the notion that vocational training can be accomplished once for all, for any given student. I can imagine a system in which a boy of fourteen would be offered a two-months course fitting him for a specific juvenile occupation, and that two or three years later such a boy would return, even to an all-day school, to be systematically trained for some adult trade or commercial pursuit. I can readily imagine a fully equipped school system having vocational schools into which the workers in various callings might enter in dull seasons, just as I can imagine such a school system offering to the industry itself, for employment, its partly trained workers in order that they may obtain, during a rush season, valuable experience. From this point of view, for example, how absurd it would be for a school of salesmanship to remain in session throughout the month of December, when in all our cities during that season the demand for salesmen and saleswomen is so large, and when a very valuable type of experience in salesmanship could readily be obtained. By means of part-time work, evening classes, short courses during dull and other special seasons, and other similar means, we shall, in all probability, eventually be providing more or less systematic instruction for a very wide range of occupations.

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For those trades and commercial callings in which a considerable period of systematic training, involving definite practice on the one hand, and a large amount of correlated technical instruction on the other, is required, my prediction is that our program will eventually assume something of the following shape:

Young people from fourteen to sixteen years of age who cannot continue further their general education will either give their entire time to a vocational school equipped with shops and all facilities for productive work, or else will have substantially half of their time provided for in a vocational school and the remainder in work directed by the school in industries, the school undertaking to direct or at least advise as to the shifting of the young learners from job to job, with a view to making such practical experience of maximum educational value.

At about sixteen years of age, these young workers will be introduced to their respective industrial callings under the guidance of the school, by an arrangement entered into between the school and the industry, the school still retaining supervisory oversight, for two years, of the learners, with a view to preventing their being confined too exclusively to a limited field of work, and to insure that their practical experience shall give a large return in educational development. During this period the wage of the learner will be determined primarily on the basis of the requirements of his educational program, and only secondarily in

view of what he might be making as a producer through the employing establishment.

After eighteen years of age, and for several years, doubtless, it may be assumed that the worker will return to the school, either to evening classes or to day classes during dull seasons, as a learner; but after the age of eighteen he will be independent, so far as his pursuit of his occupation is concerned. He, himself, will thereafter be regarded as best judge of his educational needs.

The foregoing are offered as suggestions as to what future developments may be. They are based, in large part, upon a consideration of present tendencies in vocational education.

There are, of course, many other problems with reference to which we possess but imperfect light at the present time. For example, it is still insisted in some quarters that in our large manufacturing industries there are many occupations, some of which, indeed, pay good wages, but for which no specific training seems to be required. I do not, myself, believe that careful examination will show this to be the case, but it is readily understandable that for many occupations a comparatively short period of training may prove ample. On the other hand, in this connection are certain problems as to the development of the worker that must not be ignored, and with reference to which research will undoubtedly give us, in the near future, increased light. I refer, among other things, to the

problem of physical and mental effects of highly specialized pursuits followed persistently by young people still in the plastic stages of their development. It is possible that experience will show that a specialized occupation followed for several years by a young person may prove irreparably harmful, both to physical development and to that kind of mental development which is closely related to moral character. On the other hand, it is equally possible that such a specialized pursuit followed by a person who has attained maturity may not prove greatly harmful, particularly when carried on to the extent of only eight hours per day.

If experience should show these surmises to be true, then, it would doubtless be necessary for society, not indeed to deprive a person between fourteen and eighteen years of age of all opportunities to work productively in specialized occupations, but rather to insure, on the one hand, a reasonable maximum number of hours during which he shall be so employed, and on the other to insure a large degree of shifting from one occupation to the other, so that experience may be broadened, and many, or all, functions of the body connected with work be permitted to have adequate development.

In a number of other directions you will be confronted by opportunities for constructive work such as have been rarely met with by educators following the

historic lines. It is now clear, for example, that in connection with each specific department of vocational training we must constitute advisory committees composed of persons serving in the capacities of employer and employed, as far as practicable, in the industries concerned.

The opportunity to combine, in this connection, the experience and insight of practical men and of educators has rarely ever before been found in educational administration. Many educators are even yet disposed to look upon the advisory committee as something of a fifth wheel, making more for obstruction and friction than for efficiency. We should not so regard the advisory committee. With heads of departments properly instructed as to the relations which they should maintain with the advisory committees, we shall be able to utilize this agency as one of the most valuable of the efficiency factors in a "functioning" system of vocational education. Each advisory committee should be called together frequently, primarily by the head of the department concerned, who should be selected not only with reference to his knowledge of the trade which he undertakes to teach, but also with reference to his ability to present constructive suggestions to his advisory committee, and to follow them up to the point where he can either get a confirmation of his point of view, or a quite distinct and intelligible dissent therefrom. The director of the school and, where practicable, the assistant superintendent, should also

come in to these conferences between the head of the department and the advisory committee. It may sometimes require a great deal of patient endeavor to bring about effective relations of the kind here suggested, but I am convinced in my own mind that effort expended in this direction will prove of invaluable service in developing sound vocational education.

Vocational schools will, in large part, have to be responsible for the training of their own teachers for many years to come. Every assistant superintendent should, therefore, regard this as an important aspect of his work. It is now clear that heads of departments and the teachers in our vocational schools must be selected primarily from among persons who have already had successful experience in the calling for which they are to give training, and who, in addition thereto, have a desire and some innate capacity to teach. Your first responsibility, therefore, is for the selection of men of this character, and the next is for the task of organizing some quite specific pedagogical training for them in those departments in which their experience has given them least experience and insight. I believe that we shall be able to do much of this work in evening classes, supplemented, probably, in some cases by a year's service in the capacity of assistants in vocational schools. In this way we should be able to build up, eventually, a strong body of teachers who are, first of all, masters of their art, and who have

added thereto a substantial amount of additional training along pedagogical lines.

It has been stated above that the public is now willing to support vocational education. In the minds of some, the exception to this statement is found in the attitude of labor unions toward vocational education. There is a widespread, although somewhat vague, belief that labor unions are, or will eventually be, hostile to vocational schools under public control. There is now no satisfactory evidence that this is their attitude, and we have enough faith and confidence in American citizenship to believe that when the case for vocational schools is fully and dispassionately presented to labor unions they, themselves, will prove the most active supporters of these schools.

Naturally, exceptional situations will be found. Even now we note that certain trades are in a process of disorganization, owing to the perfecting of machinery, the development of subdivided work, and the effect of new inventions. In the printer's trade, in the machine-shop trades, and in many others, this is manifestly the case. It would be but natural in these fields that organized labor should seek to perpetuate the trade standards, and should desire to resist the introduction of short-unit courses which, however well adapted to training for a part of the field of work, would seem to have the effect of furthering the disorganization of the trade. I see no reason myself why, for example, in the printing trades, linotype operating

should not come to be a clearly defined vocation in itself. If this results, however, it will have a serious effect upon the standards of education for printing as formerly conceived.

Again, organized labor will be very sensitive, and with reason, as to the possible overcrowding of certain callings by vocational schools. It is quite conceivable that vocational schools might, in some fields, prove to be so successful that their numbers might be multiplied and their graduates disproportionately increase the labor supply. Organized labor could quite naturally insist that such overcrowding is not only inimical to their interests, but, eventually, also to the interests of all entering the occupation. On this point it is clear, however, that society at large must have opportunity to offer judgments, as well as those particularly affected. Broadly speaking all occupations may, from one point of view, be said to be overcrowded; but from another point of view it can be contended that they are undersupplied. Almost all occupations are overcrowded, if we take account of all workers, skilled and unskilled, competent and incompetent, seeking opportunity therein. This is certainly true of all the professions, the trades, and even the fields of unskilled labor. On the other hand, taking account of the type of skill and power that are commonly in demand, and especially at wage-rates which employers are willing to pay, many occupations may be said to be undersupplied with competent service. This is certainly true in

such fields as medicine, engineering, the trades, and the commercial callings. We sometimes think of agriculture as being one of the fields that is never overcrowded, and in which there is perennial opportunity. Practically, this is no more true than in other callings, even including the professions. It is true that agriculture as a field of labor is undersupplied with properly trained farmers possessed of adequate capital. On the other hand, agriculture is very much overcrowded with persons who are only partially competent, who monopolize land, and who disorganize markets by their sporadic and ineffective efforts at productive work.

Consequently, in passing upon the question as to what represents an adequate supply of labor for any given field of service, taking account not only of the situation at the moment, but of future developments, society itself, with the aid of expert knowledge, must eventually insist upon passing judgment.

Vocational education, as organized in all our urban communities, will almost invariably represent at least three great divisions; namely, the commercial, the home-making, and the industrial. At the present time I am convinced that schools belonging to each of these divisions should be completely independent of each other, just as each should be independent of schools of liberal education as regards organization, staffing, equipment, etc. It is quite possible, also, that many of our urban communities will yet find it desirable and

expedient to establish agricultural schools at first, perhaps, for such fields as marketing and greenhouse gardening, and later for more extended service. We are still in the experimental stages of the training of city-bred boys for farming as a pursuit. There are those who believe that such education is practicable, and will prove very profitable. There is certainly room for doubt on this question, however.

I am now of the opinion that each industrial school, as well as each school of home-making and of commercial occupations, in our city communities, should be under the general charge of a director or principal, who, whether or not he be a skilled worker in some one of the occupations represented by the school, shall, at all events, be an expert educator in the sense of having a large amount of pedagogical insight and knowledge of the purposes of vocational education. Under the director or principal should be a head of a department, each department being, of course, organized with reference to the requirements of some particular calling. The head of the department must certainly be an expert workman in the occupation for which training is being given. He should be the primary point of contact between the department and the advisory committee, the director coming in wherever practicable. The advisory committees of various departments might well be gathered together as a joint committee for certain purposes where the well-being of the school as a whole is to be considered, this meeting, of course, to

be primarily organized and directed by the principal or director of the school.

Vocational education as thus organized will prove necessarily expensive, whether we think of the all-day school, the part-time school, or the evening school. The question of expense, however, must always be secondary to the question of efficiency, and the problem of every administrator is to get the maximum return for the money expended. I have no doubt, myself, that society will more and more willingly contribute to the support of these schools, if we can demonstrate that every hour of work done in them for each student is amply worth while.

VII

To the Principal of an Industrial School :

IN the field of industrial education, I think, we have reached the time in America where we can say that the industrial school is now being conceived of as a strictly vocational school, that its primary and controlling purpose is to fit properly selected groups of young people for definite proficiency in clearly defined industrial occupations. It has taken us a long time to reach this conclusion, however. We have called all sorts of makeshifts and pretensions "industrial education" in the past. We have called that an "industrial school" which gave no practice, and which simply attempted to teach certain abstract subjects, such as shop mathematics or drawing, to students, in the hope that they would eventually use the results of this teaching in their occupations. In many cases our so-called "industrial schools" have only been modified forms of manual-training schools. I am almost disposed to think that, apart from a few private foundations, the most complete industrial training found in this country was first given in certain schools training girls for the trades of millinery, dressmaking, and so-called "power machine operating."

We have, however, in the last few years made very rapid progress, at least in our thinking, if not in our

practice. Fortunately, the public now gives us ample support. Whereas a few years ago it was a seriously debated question whether public funds could or should legitimately be expended for public industrial education, now the prevailing attitude which gave rise to that question has almost wholly disappeared. We can say broadly that the public is to-day willing to support any form of industrial education if it can be shown that, in its administration and results, such industrial education is effective and economical. We recognize, of course, a fundamental distinction in the field of vocational education, according as to whether the practice which must constitute a large, and perhaps major, portion of such education is obtained in an industry itself, quite independent of the supervision of the school, or in an industry operating for this purpose in close coöperation with the school, or in shops directly managed by the school. In any event, we recognize the necessity of making such practical experience the paramount factor in our work. In our evening industrial classes we adjust our instruction to the practical experience obtained by the learner in his day's work. In our part-time classes we also seek close coöperation with the employing establishment, in order that the practical experience obtainable therein may be made to correlate as directly and effectively as possible with the practical experience and the technical instruction which the school, itself, offers. If, as must necessarily be generally the case with our

younger pupils, the school, itself, organizes and controls shops and other facilities wherein practical experience can be obtained, then this shop work is placed on a productive basis, its output is expected to find its way into the markets, and the larger part of the technical instruction is organically related to the practical experience thus obtained.

Ideally, we should have a separate vocational school for each separate occupation which is being taught. In that case, the head of each vocational school would presumably be an expert in the occupation which is being taught, and would be capable of carrying out whatever activities might be required in connection with the framing of a course of study, coöperating with the advisory committee, and otherwise administering his particular vocational school. I am of the opinion, personally, that in our larger centers of population it would be much more effective to organize vocational schools on this separate basis, in order that each one might clearly realize its ends, unhampered by the conditions attaching to the administration of the other.

For the present, however, this desirable goal does not seem to be feasible. We are building up, in our American cities, a series of vocational schools, each one of which has several departments — I regret to say, in some cases, not even yet clearly differentiated with respect to the different operations for which they give preparation. At the head of this school is placed a

principal, or director, who is usually chosen because of his demonstrated interest in vocational education, his grasp of the pedagogical principle involved, and his general vocational efficiency. As long as we have this type of school, I look to the principals or directors to be very interested factors in the development of the work and practice of industrial education. It is because of this, therefore, that I am addressing to you this communication, in which are discussed some of the problems which seem to me still to lie ahead for solution in the field of industrial education.

In the organization of the industrial school (using that term to cover a school containing two or more departments), I think chief importance should attach, hereafter, to a clear-cut differentiation of the purposes, and therefore of the administrative means and methods, of each department. While we may easily assume a close relation between some trades, I think we are far more in danger, to-day, of overlooking the fundamental differences among occupations than of overlooking their points of resemblance. Therefore, a clear-cut differentiation of departments, except as regards the cultural or general work which shall be given in common, seems to me of fundamental importance. To this end, I believe we should exalt the importance of the head of a department. He should be an expert in the occupation for which training is given by that department. He should be the primary source of suggestion as to its courses of study, equipment, and

the means and methods employed. He should be required to keep himself in close touch with the industry for which he is giving preparation. He should be the primary point of contact between his department and the advisory committee, which should be composed primarily of people in this occupation serving as employers and employees. He should also make first recommendations as to the choice of assistants and instructors in his department.

You may obtain the impression that I would, therefore, advocate a relative lowering of the importance of the work of the principal or director. I suspect that the principal or director will not always, or perhaps often, be an expert in one of the occupations for which training is given in the school. He will rather, at least for the next few years, be a man of pedagogical experience and of general administrative ability, capable especially of coördinating, in the interests of efficient administration, the work of various departments. He will have to pass upon all proposals made by the heads of departments, in order to judge of their educational validity, as distinguished from their closeness and directness of response to industrial needs. I do not foresee any lessening of the importance of the work of the director or principal of the industrial school corresponding to an enhancement of the responsibilities of the head of a department. I do feel very keenly, however, that any attempt on the part of the director to pass upon the industrial aspects of the work of vari-

ous departments will prove impracticable and unfruitful. He must recognize his limitations. It is impossible that he should be an expert in such unrelated lines as house-painting, machine-shop practice, printing, brick-laying, etc. It is practicable to require that the head of each department in these various fields should himself be an expert.

The problem second in importance, which will still claim our attention for many years in the future, I am convinced, is that of organizing our practical work on the basis of definite units, each of which shall be capable of giving a maximum return in the shape of educational development. For the present, we are describing the most satisfactory unit as the "project," or "educational job," whereby is meant a practical piece of work, well within the range of the learner, and in executing which he obtains valuable experience and practice, as well as opportunity, on the one hand, to give renewed application to whatever he already possesses of technical knowledge, and on the other to obtain a basis for the acquisition of new technical knowledge and application thereof.

I think that in some of our industrial schools there already obtains a fairly clear-cut conception as to the educational validity and possibilities of the "project" method of practical instruction. Many teachers, I am convinced, even in these schools, still feel that the problem of guiding, in connection with a project, the so-called "related technical instruction," is as yet al-

most insuperable. I suppose that every teacher, owing to preconceptions, thinks that a large part of technical knowledge must be given separately and on a logical basis of instruction, more or less independent of the practical work followed. For the present, I am disposed, however, to insist that the larger part of the technical instruction shall be in close relation with the "educational job." I see no other way, on the one hand, to determine what technical knowledge is, or will be, suitable and valuable to the learner, and on the other hand, to give the learner the habit of resorting to reference material and other sources when encountering problems of a technical nature in connection with the working out of practical jobs. I believe that fully nine tenths, and in many cases ninety-nine per cent, of all that we teach the average person along such lines as mathematics, mechanical drawing, science, etc., remains in cold storage, and "non-functioning," if while the learner is in the school he does not, himself, carry into application the knowledge so learned. The wastefulness of this is something that can hardly be conceived.

The industrial school with which you are connected now gives its attention to training for the so-called skilled trades. Printing, plumbing, house-carpentry, machine-shop practice, house-painting, electrical work, pattern-making, and the like are some of the historic occupations which are now successfully taught in schools. But the highly subdivided manufacturing

occupations, such as textile manufacturing, shoe manufacturing, food-packing, furniture-making, mining, and hundreds of others we do not teach as yet. I think our authorities in charge of industrial education are blind to their opportunities here. They are training for the aristocratic callings, as their forbears trained only for law, medicine, and other "respectable" lines of employment. Again, we dislike to think of short-course training. Even where demonstrably practicable, we feel vaguely that it is somehow unethical or non-educational to give short course training, except in evening schools. But I think our feelings in this matter are unwarranted prejudices, and that eventually we should offer in our industrial schools a wide variety of definite and highly practical intensive "short-unit" courses in the numberless specialties found in modern industrial life. Only so can we remove the reproach now attaching to the so-called unskilled occupations. Only so can we prove what, in my estimation, is a fundamental fact, namely, that there are no unskilled occupations in reality; that is, occupations in which the results of purposive vocational training would be of no substantial advantage to worker or to the society using the results of his work. We have here a large field for experimental, exploratory, and constructive work in bringing industrial education into the twentieth century.

VIII

To the Principal of an Agricultural School :

IN no other department of education are there clearer evidences of the transitions which are now taking place in educational thinking than in the field which your school represents. For nearly a century advanced thinkers have favored the idea of systematic agricultural education for young people who are eventually to follow the career of farming. The agricultural colleges of the United States, established under the stimulus of national grants were, themselves, in part an outgrowth of this idea, although only to a relatively slight extent have their activities ministered to the actual training of young men to be farmers. From time to time in academies, secondary schools, reform schools, and various so-called "institutes," agriculture and, more particularly, the sciences supposed to underlie it, have been taught. Public appreciation of agricultural instruction has greatly increased, notwithstanding the probably futile effects of much that has hitherto been done in this direction. At the present time, in many States of the Union, widespread efforts are being made to introduce agriculture, or agricultural science, as studies in public high schools. In these and other States, also, separate schools of agriculture have been established.

It is now becoming clear, I think, to all careful students of agricultural education that there are two very distinct purposes to be subserved by this instruction, and that unless these are clearly differentiated, money and effort expended on them is likely to be wasted. The first of these purposes to be considered is the vocational one. I suppose it is safe to say that nearly all persons, in thinking of agricultural education, value it chiefly as a means of training young people to be thoroughly efficient farmers. Such persons realize that modern agriculture is something very different from the arts of tillage of crops and the breeding and care of live stock which were practiced by our forefathers. Modern agriculture tends, everywhere, more and more to rest upon a scientific basis. The first thought of an interested student naturally is that if a learner can master this science, then his practice will be immediately and correspondingly affected by such knowledge. It is undoubtedly with this purpose in view that agricultural courses have been introduced into so many public high schools and academies, and that so many separate schools and institutions of agricultural teaching have been established.

Experience with vocational education, however, in agricultural as well as in other fields, is more and more proving the futility of an approach based mainly upon intellectual processes of learning abstractly as distinguished from processes of learning through practice. Even in such professions as medicine, law, and engi-

neering, in which formerly the studies were chiefly of an abstract or intellectual character, there is everywhere a steady tendency to increase the amount of practical contact with the problems of the profession which the student may obtain. In some professional lines of study it is exceedingly difficult to obtain this contact. Nevertheless, the key-note of the newer education in these fields is to be found in the development of facilities for obtaining the practical experience under conditions as nearly approximating those of the actual profession as can be obtained.

Similarly, in the fields of industrial education, experience is demonstrating that courses of training must be based primarily and fundamentally, first of all, upon practical experience, and that the mere learning of such subjects as mathematics, mechanical drawing, and the others that underlie, and in some ways are related to, practical efficiency, by no means suffices as vocational training except for the person who has served a thorough apprenticeship in practice. In the field of agricultural education, similar conclusions are now being reached, although most of our educational institutions are experimenting with various forms of "imitation" practice because of the administrative difficulties connected with the organization of definite units of practice corresponding to the work to be done by the students in future. Our agricultural schools, in many cases, now have attached to them demonstration farms. A considerable amount of laboratory work,

and sometimes experimental gardening and other forms of cultivation, are carried on. Attention is given to the visitation of successful farms. Sometimes it is assumed that the work done by the student during his summer employment is a valuable substitute for actual experiences obtained under the direction of the school. It is my belief, however, that all of these forms of practice are exceedingly deceptive and probably yield, for the majority of students, little or no substantial return, if judged by the requirements of an effective program for the training of farmers. I am more and more convinced that the only practice that will prove to be worth while educationally is that which requires the student to organize, on an economic basis, certain agricultural activities which he will carry through to their final fruition. I feel very strongly that even in the agricultural colleges, excepting in the case of a relatively small number of students who go to the institution with a satisfactory basis of experience, it would be highly desirable if early in his course each student were required to undertake the raising, on not too large a scale, of some crop. He should be held to this work until he is able to demonstrate an obvious economic outcome from it.

But this is peculiarly necessary in the secondary school of agriculture. The agricultural college will of necessity deal with a limited number of persons of much more than average ability. It is the secondary school of agriculture, including thereunder the short

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course for experienced farmers, to which the public must look for the training of the large majority of its farmers in the science of agriculture. The students will, in the main, be of only average ability. Their capacities for learning will be far stronger on the concrete than on the abstract side. They will have relatively little capacity for the mastery of such pure sciences as botany, chemistry, bacteriology, etc. They will have even less capacity to carry over the results of abstract teaching in these sciences to actual practice.

Evidence is accumulating that the most effective approach for these students will be through actual practice under economic conditions, the school being in position to aid the students at every point, to find a more scientific explanation of the facts with which they deal, and a profitable interpretation of the problems by which they are confronted. From my point of view, therefore, the vocational agricultural school of the future will be one in which all the work will center about actual practice. This will necessitate two types of schools.

The first will be designed for mature persons who have had a large amount of practical experience in a given field of agriculture, and who have reached the stage where they reflect carefully and extensively upon the problems involved. Successful work for this class of students is now being given by many agricultural colleges through their short courses. A number of so-called "secondary" schools of agriculture in reality,

also, do their most effective work by reaching these students who are, or who should be, over twenty years of age, and who should be able to demonstrate, as a condition of taking a given course, that they bring a satisfactory basis of experience and that they have, to some extent, defined their problems and have come to feel the necessity of further aid in solving them. For these students, short courses in poultry raising, in various methods of preserving fodder, in spraying, in bee culture, etc., are invaluable. These courses will necessarily be of a technical character, using correct illustrations of actual practice where necessary. They will be successful largely in proportion as the instructor himself is a master in practice in the particular field under consideration, and in proportion, also, as he is able to confine his efforts largely to meeting the particular problems which the farmers themselves have in mind. Pedagogically, the success of a course of this kind depends upon the instructor starting with his students where he finds them, speaking in their language, dealing with their problems, and employing means which they can easily comprehend and utilize.

The second type of agricultural school, designed chiefly for persons from fourteen to twenty years of age, does not presuppose the possession of a body of successful experience obtained prior to entrance upon school work, nor does it place undue reliance upon the results of work carried out under the conditions of

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drudgery or gang labor at home, or during summer periods. This vocational school, like the other, will build chiefly around practice, but in this case the practice shall be controlled and directed by it. For boys coming from farms, of course, the most valuable place and means for such practice will be the home farm and its equipment, but in so far as this is utilized by the student, it will be utilized on a "separate-unit" basis, the conducting of the work under this separate unit to be under the control and direction of the school. This means, practically, that a certain amount of land shall be set apart for the use of the learner, and that provision shall be made to enable him to hire apparatus and, if necessary, additional service to carry out successfully the operations connected with the unit of work set apart, whether this be land or live stock. In the event that the boy does not have a home farm providing facilities of this character, then a properly conducted school must enable him to find such facilities elsewhere. In every case, the theory must be that the boy, as learner, will carry, throughout the year, a project of an economically profitable character, for which he shall be, under the direction of his instructors, primarily responsible, and every problem in connection with which he shall, with the assistance of his instructors, solve for himself.

The larger part of all technical instruction must be related to the practical work thus being carried out. Obviously, for this purpose most of the available text-

books can be used as reference books only, since, as a rule, they deal with agriculture throughout a wide area, and involve a large amount of material for which the learner under these conditions has little or no immediate use. A student under these conditions will not study any science as a pure science. He will study it only as it applies in particular fields of agriculture with which he is familiar and in which, in greater or less degree, he is obtaining concrete experience.

I am becoming convinced that the more nearly the so-called "vocational school of agriculture" can approximate the conditions here suggested, the more effective it will be in doing that which is its alleged work; namely, the preparation of youths to be farmers who are not only capable of meeting some of the problems of agriculture with skill and effect immediately, but who, furthermore, are equipped to take advantage of all sorts of aids to the study of future problems as these may arise in connection with crops or live stock with which they have had experience, or with which in the future they may be expected to deal. I see no other means than that of the home project method, as described above, of training farmers in the method of intelligently using bulletins, results of recent experiment-station tests, results of home experience, etc. The whole purpose of teaching agriculture must be to enable the learner to define his own problems, and then to form the habit of going to the most profitable sources for information in solving them. It is not to be

expected, in agriculture or in any other of our complicated fields of applied science, that the individual worker will solve his own problems. His capacity must be chiefly that of knowing where to find aid as soon as he has defined the problem which confronts him.

The foregoing deals with the vocational school of agriculture. I am personally of the opinion that comparatively few so-called "schools" or "departments" of agriculture are, as yet, in any genuine sense efficient from this point of view. In most of them, agriculture is still approached as an abstract subject, and many of the pupils are in reality only toying with it. I am convinced, however, that there is a place in secondary education for the study of agriculture purely as a subject of liberal study. In many schools now offering agriculture, comparatively slight readjustments will be necessary to make this study "function" in this way quite effectively. I think we should clearly indicate to all concerned that study of this character is not vocational, and ought not to be expected to be vocational. I do not believe that any program of vocational education can be effective on the basis of only five or ten hours per week allotted to it. To be really effective, it must claim the undivided attention of the learner for the greater part of each working day.

But, as a part of general education, a course in agriculture revealing to the learner the place which this occupation bears in the work of the world, the characteristic facts associated with its development in vari-

ous parts of the world, and the extent to which modern scientific discovery has contributed to its development, would be abundantly worth while. In many of the available textbooks I see most promising means of approaching the subject. These books, well illustrated, well written, and presenting a broad and generous outlook on agriculture as that is carried on from the Atlantic to the Pacific and in various other parts of the world, and suggesting the enormous extent to which modern mechanism and modern scientific discovery have promoted its development, must surely be an illuminating study. As a means of liberal education, agriculture might even more profitably be given to pupils in cities, although there is not the slightest reason why students in a country high school should not be encouraged to read widely and generously as to the scope and possibilities of agriculture in various parts of the world.

My only regret is that in so many cases the public is still deluded into thinking that three or four hours of instruction per week in agriculture, with a small amount of laboratory illustration, such instruction being based mainly upon textbooks written to serve equally well all parts of the country, should have any particular or noticeable educational value as preparation for a vocation. I think this is only one of the innumerable cases in which we permit the public to deceive itself.

IX

To the Principal of a Commercial High School :

ALONG with the development of public high schools in the United States during the last quarter of a century has gone the development of commercial departments in these schools, or of independent commercial high schools. The number of pupils now studying commercial subjects is astonishingly large, and many of our communities are investing very substantial sums of money in commercial education. Education for business life whether under public or private auspices, has always seemed to possess a fascination for boys and girls, and for their parents, in rural as well as urban communities. It is still believed by many to be a short cut to a successful career. There can be little doubt that a great many of the boys and girls who now study in our commercial high schools are not destined to succeed in commercial occupations; but, nevertheless, the army of those seeking such opportunity continues to increase.

At the present time, as you are well aware, there is a large amount of criticism of commercial, as well as of general, high-school education, and an increasing disposition on the part of the public to inquire as to the efficiency of practices now followed. My own experience has convinced me that a relatively large

amount of so-called "commercial education" is still very far from being even moderately efficient as vocational training. Commercial high schools and commercial departments in regular high schools, hardly less than other forms of secondary education, are in much confusion and doubt as regards the desirable and feasible aims of the courses they offer. As a consequence, a great deal of the discussion regarding methods of instruction is necessarily futile, actual objectives being so ill-defined.

To my mind, the large problem immediately confronting schools like yours is that of more adequately defining the purposes for which they exist. Historically, we have been content to teach in these schools certain subjects which have, or seemed to have, a relationship to occupations that might later be followed. Everywhere now there is an increasing disposition to insist that we shall give preparation for vocations, not merely as segments of a circumference, but that we shall round out the circumference as fully as practicable. In other words, it becomes the business of the school to give, in greater or less degree, training for an occupation, and not merely instruction in some of the studies or practices believed to be of value in that occupation.

Private commercial schools have long been dominated by the vocational aim, — perhaps too narrowly conceived. They have sought to prepare pupils who would be acceptable to employers, and have largely

confined their efforts to the specific training required to procure opportunities for work.

On the other hand, the public commercial school has rarely defined for itself an exclusively vocational aim. It has been dominated, and to some extent, I believe, hampered, by the necessity of giving cultural courses along with vocational courses, in the belief, perhaps — which certainly was once quite widely accepted — that it was not the business of any public school to prepare its pupils exclusively for a vocation. As a consequence, the vocational studies in public schools have often come in through the back door, and have been developed, to some extent, in a spirit of half evasion. Even yet I find that a great many commercial-school teachers and principals feel that there is something sordid and unworthy in having a commercial school pursue definitely vocational aims.

I do not contend that the commercial high school should not offer cultural courses to pupils desiring them, but I do believe very firmly that in the course of the next few years the commercial school will be compelled, by the force of public opinion as well as by the conditions of its support, clearly to differentiate between its vocational aims and the cultural studies which it offers either as elective or on a compulsory basis to its pupils. This will facilitate the testing of the work of the school along vocational lines, so that the degree to which it accomplishes the aims which it sets for itself will be capable of analysis and measurement.

The next important step, as I see it, in the development of commercial education, will consist in discriminating among the various occupations for which a commercial high school can legitimately give preparation. At the present time, the situation in this regard is, I should imagine, hopelessly confused. There are really many quite distinct types of commercial occupations for which any well-equipped school can to-day give preparation. There are some upon which the trained candidate can profitably enter at the age of sixteen. There are some others, probably, for which even the four years of the high-school period are all too few to give adequate preparation. There are some requiring a large degree of technical skill and a comparatively small amount of general knowledge. There are others, probably, for which the needed technical preparation can be given only in small part, but for which the school can lay broad foundations of insight, appreciation, and instrumental knowledge.

It is a prime necessity that these various commercial occupations should be discriminated and described, and that each one should be made the goal of vocational school effort in commercial schools.

Another problem requiring early consideration is that of defining the actual purposes served by certain studies which as named, and sometimes as to content, seem to have an important bearing on commercial efficiency, but which bearing, I believe, must be re-

garded as largely illusory so far as the majority of students is concerned. I refer to such studies as commercial law, industrial or commercial history, commercial geography, a foreign language, and industrial or commercial science. I find in many commercial schools strong emphasis laid upon these subjects, which emphasis, I think, is due more largely to the ease with which they can be taught from textbooks than to any demonstrated connection of such subjects with success in any particular line of occupation. If, now, it be contended that these subjects are not taught with a view to vocational training, but rather as a valuable means of cultural development, utilizing a vocational motive, I should be disposed to approve. In that case, however, I am convinced that the methods of teaching and the organization of subject-matter would differ greatly from those now employed. If such subjects are to be taken primarily from the standpoint of an appreciation of the activities and accomplishments of the world of commerce, I should have no complaint, but I still raise the question as to whether, as now taught, such subjects actually "function" in this direction. I should be disposed, at the moment, to substitute a systematic reading of such journals as the *World's Work* for systematic training in studies of the kind described above.

Again, I would suggest that careful attention be given in commercial schools to the "functioning" of certain general studies which are traditionally identi-

fied with secondary education, but which the commercial school is under no obligation to offer. I refer more particularly to algebra, geometry, and some of the sciences, which are now often made compulsory.

I strongly believe in the possibility of offering courses of different length in commercial schools, accommodated to the needs of students of different economic situation. For example, courses in indoor salesmanship of two years in length might well be given, it seems to me, to persons who might be expected to seek employment at sixteen years of age. Courses in stenography and typewriting might also be offered, with profit, to students who would be expected to complete such work at sixteen or seventeen years of age; but it should be clearly indicated, through vocational guidance, that a longer course, with broader foundations, might ultimately be of much greater profit to the individual.

I presume you will reply that any school which offers short courses is in danger of short-circuiting the educational careers of a large number of pupils. To my mind, this is an utter misconception of the capacities and ambitions of the pupils in our schools. In so far as short courses in the past have actually short-circuited the work of pupils, this has been due, in the main, to our failure to demonstrate the value of the longer course. We have assumed that far too much of the work of the pupils should be taken on faith; and because the longer courses offered such

uninspiring and probably profitless work as algebra and ancient history, the pupils, themselves, have naturally chosen the shorter courses.

The high schools of commerce now correspond, in many respects, to higher technical schools in some other fields — in other words, they do not train for vocations as such, but give training in certain technical knowledge which will probably be used by the student after he enters on a commercial vocation. Probably these schools will eventually differentiate certain occupational fields, for which they will give training no less direct, specific, and practical than that now given in schools of dentistry, pharmacy, electrical engineering, and stenography.

For many of its pupils, the present commercial high school offers an excellent "general education," without perhaps intending it; but as I see it, the secondary school cannot afford to allow to persist such confusion of purposes as hampers the public and students in distinguishing between those courses of instruction and training which are for liberal education and those others which are intended to lead directly towards vocational competency.

X

To the Principal of a Manual-Training School :

THE manual-training high school (the term will be used in this letter to include so-called "technical high schools," "mechanics arts high schools," and the yet undifferentiated type of industrial high school in which the work is designed for boys who have substantially completed the elementary-school course) has come to occupy a rather formidable place in American secondary education. The number of these schools is not great, but inasmuch as they are found usually in large centers of population, and have been organized on a generously supported foundation, they necessarily figure prominently in any account of secondary education. The actual aims or purposes of the manual-training high school (as distinguished from its alleged purposes) are nowhere as yet clearly defined. In fact, it seems to me that, to a larger extent than usual, the public has been misled or has been permitted to deceive itself regarding the possible functions and the real service of this type of institution.

There can be little doubt but that the public, itself, has been induced to support the manual-training high school in large part in the belief that it would serve as a high-grade institution of vocational, or at least of technical, training for certain of the more important

industries. The equipment of the school, the very practical experience, in particular, which the boys obtain therein, and the superior character of the students taking the work, have all served to impress the citizen and casual visitor with the great purposefulness of all of the work done. It is certainly true that these schools have been popular. Rarely have they lacked students of good ability and working energy. It is an impressive sight to see the hundreds of well-developed boys in a large manual-training high school taking shopwork in relays and doing this work with a great deal of spirit.

As a rule, however, the school men in charge of these schools have never wavered in their devotion to the historic ideals of academic education. Only rarely have they forced themselves into thinking that they were administering vocational schools, except as they would interpret any good form of all-around or general education as being an effective and economical preparation for a vocation. As a rule, the men in charge have believed that all of the academic studies (excepting, possibly, the classical languages) should be represented, and that the ideal course was that in which the student would take substantially as many of the usual academic studies as a pupil in any other high school, to which would be added from four to ten hours per week of work in drawing and shop practice. The result has been that the manual training high school has undoubtedly served the community as an excellent high

school. I doubt if there is any evidence that in actual educational results this school has been, in the least inferior as a general high school to the so-called "classical," or English high schools of the community. It is, therefore, no discredit to the manual-training high school to say that even yet its aims are not clearly defined in any sense making for more efficient work. These high schools, like other high schools, have sent a large quota of students to the higher institutions of learning. These pupils, on the whole, have probably done about as well in most of the lines of work as students from the regular high school. It is doubtful if they have conspicuously distinguished themselves in the fields of engineering and other higher technical instruction.

I am aware that within the last few years certain important developments are taking place in a few of the technical high schools of the country, mainly in the direction of permitting, during the last two years of the course, a considerable amount of specialization, thus enabling pupils in greater or less degree to qualify themselves for the successful pursuit of such trades as printing, machine-shop practice, draftsmanship, electrical work, and cabinet-making. I do not, however, find any satisfactory evidence that the proportion of the graduates of these courses entering upon the occupations for which training was supposed to be given, is so considerable as to justify one in regarding these departments as vocational departments. I imagine

that the proportion of graduates of these technical high schools entering, for example, upon salesmanship or the professions is as great as that from the regular high school.

There is, I know, a theory held with some favor among the faculties of manual-training high schools that these schools give general preparation for industrial work, through teaching the principles of tool manipulation and of work with materials, as well as giving a knowledge of related technical processes. I have never been able to satisfy myself that this theory or tradition was anything more than a modified survival of the ancient notion that any good general education constituted, through its effects in mental training and increase in general knowledge, a satisfactory foundation for almost any vocation. It is noteworthy that the manual-training high schools have drawn upon only a comparatively limited number of the occupations which men follow for practical work. The trades of cabinet-making, pattern-making, wood-turning, machine-shop practice, electrical work, and printing have constituted the chief sources of shop practice as now carried on. In a few schools, we find the beginnings of foundry work, house carpentry, forging and wood-carving introduced, but in a very fragmentary fashion and chiefly for purposes of illustration. The great industries for the manufacture of textiles, the production of leather and leather goods, food preparation and packing (such as butchering, baking, canning, etc.),

pottery and glass-making, stone and brick work, house-painting, and mining are not, so far as I know, represented in the work of our manual-training high schools. I have no confidence in the notion that a more or less complete line of practical experience in one of the trades referred to above constitutes a satisfactory basis for entrance upon another. This seems to me to savor altogether too much of the ancient, and now, I trust, generally discarded notion of mental discipline (with its modern analogue in "hand" or manual training of a universal character).

The time has come when the manual-training high school, like every other high school, should more clearly define its aims, analyze the means and methods by which these aims are to be realized, and test the efficacy with which, under given conditions, its means and methods are employed. To this end it is, first of all, essential that we should decide to what extent the manual-training high school is to be interpreted as a school of general education, similar in spirit and purpose to any other general high school, and how far it is to be interpreted as a vocational school giving an efficient and purposeful training for a recognized calling, or group of closely related callings.

It would be entirely possible, of course, to have a part of the work (for example, the first two years) devoted to the achievement of one purpose, and another part (say, the last two years) devoted to the achievement of the other purpose. I believe that if this view

is to obtain, there should be an essential break or differentiation in the administrative organization of the two divisions of the schools. I am not sure but that they should be differently located in the community. I am clear that the various vocational schools should have each its own independent organization, and that every condition should be provided which will make its contacts with the industry for which it is giving preparation abundant and effective.

I favor strongly the idea of a general course of instruction, rich in manual training, for boys from fourteen to sixteen years of age. I see no reason why in our American cities and other more densely populated communities we should not find a large demand for general high-school courses two years in length, omitting the foreign-language studies, but abounding in profitable and interesting work in English expression, English literature, mathematics, science, history and civics, drawing, and a variety of practical work based upon the trades and other occupations which men follow. I do not at present believe that it is profitable to continue the type of manual work that we have in mind, however, beyond the age of sixteen. If manual work is to be done thereafter, it should be on a more definitely practical, that is, vocational basis.

In the high school of the type which I have in mind, I should change the spirit of the manual training very materially from that which now prevails. It seems to me that this manual or practical work should be re-

garded primarily as contributing to the general development of the pupil. It should enable him greatly to widen his experience, both with materials of industry and with the instrumental processes applied to them. This work should be characterized by very great variety, no two students necessarily taking exactly the same courses, or jobs. All of the work should be on a distinctly "job" or "project" basis; that is, the pupil as a mature worker should set out to accomplish some task which, on the basis of mature standards, is within the range of his accomplishment. He should pursue it long enough to have a sense of achievement. His work should not consist merely of exercises. The standards should be those characteristic of amateur work everywhere at its best (as we find in amateur photography, amateur wood-carving, amateur baseball, amateur cabinet-making, etc.). To a large extent, the pupil should consult his own personal interests in the work which he would choose, being held, however, to a fairly responsible expenditure of his time and energy after having once elected a given job.

Practical work carried on under these conditions would obviously not be vocational in its results. On the other hand, it might make important contributions to vocational ideals, and would certainly have value in laying the foundations for vocational choice. So far as I now see, the range of human occupations that might be drawn upon for work of this character is almost endless. Limitations would be found only in the capac-

ity of the institution to provide equipment for this work and properly to supervise it. I see no reason, for example, why, if facilities offered, the various occupations connected with mining should not be included, just as definitely as those connected with machine-shop practice, although obviously the latter is a subject more adapted to schools as now found. For any given type of job or work, not too extensive, a line of typical apparatus should be provided, but pupils should elect their jobs and execute them, as far as the facilities of the school render practicable.

If, now, at the end of two years' work of this character, it were the desire of the student to continue to the end of a four-years regular high-school course, or to fit for college, I should greatly diminish the amount of practical work, and give much more attention to the more abstract studies. On the other hand, for pupils who had "found themselves," and desired to enter upon a specific vocational pursuit, I trust that the community would provide specialized vocational schools, under separate management from the manual-training high school, into which the pupils might go. These special schools for graduates of the manual-training high school might well include schools of salesmanship as well as schools of practical production.

You will see, then, that the chief specific suggestion thus far presented is a lessening of the time given to the general manual-training work. I have no satisfactory evidence that in the case of the large majority

of boys we should continue this to eighteen years of age. I believe that the most satisfactory time for an apprenticeship in the regular industries is at the age of sixteen, and that, on the other hand, a boy getting ready for college or for the pursuit of other higher studies, should devote his years from sixteen to eighteen to quite specific preparation in this field.

One reason why I feel that the manual-training high school should not undertake the supervision and direction of the work for vocational education is that I am convinced that the very spirit of this work should be that characteristic of the trade or calling in itself, and not the amateur spirit — the amateur spirit being appropriate for the high school still bent upon giving general education.

When it is suggested that the technical high school as now constituted does not give training for definite vocations, perhaps an exception should be made in favor of draughtsmanship. A considerable number of graduates of the best technical high schools do, I understand, find ready employment as draughtsmen. This occupation seems to require just the combination of practice and technical training which the technical school can give. I think these schools can do more than has yet been done to make draughtsmanship stand out a clearly defined field of vocational training.

There are still those who believe in the possibilities of "general" or "all-round" vocational education, and I doubt not but that they see in the curriculum of the

technical high school a shining example of a program of such general training. I find that these believers in educational Utopias or Fountains of Youth are confused when faced with the problem as to what contributions they suppose the technical high schools make to proficiency in tailoring, sailoring, mining, farming, house-painting, locomotive engineering, street-paving, etc.

It is not to be denied that technical high-school graduates are welcomed as beginners in these fields (when they offer themselves) and that they are good learners. But this is probably attributable largely to the fact that they are a highly selected lot of healthy, intellectually keen, mechanically inclined young persons. They are of the fiber, natural ability, and keen zest for achievement that are likely to command success anywhere.

XI

To the Principal of a Small High School :¹

THE tendency of all current discussion of questions of secondary education is naturally to presuppose conditions surrounding only larger high schools. It is probably right that, in general, discussion of educational questions should first start with the most favorable conditions, in order that clear-cut standards may be defined. It is not right that discussion should stop with that. It is essential, if all phases of educational need are to be considered, that adaptations and adjustments should be made to situations where less than ideal surroundings exist. While, therefore, I agree that it is suitable and proper first to discuss educational administration as concerns secondary education (the qualifications of teachers, the requirements under the various subjects, college-entrance requirements, etc.), from the standpoint of the high school with a faculty of considerable size and enabled by its numbers to specialize in teaching, nevertheless, I feel that it is important that, subsequent to this discussion, the needs of institutions operating under different conditions should receive equal consideration.

The high school having from two to four teachers occupies an important place in American secondary

¹ Of two, or at most three, teachers.

education. Substantially one third of the high-school pupils of the country are found in these smaller high schools. These schools are located, usually, in country or mining communities, and the large proportion of their pupils come from the families of farmers or wage-workers. In its own community, the smaller high school is commonly the most important cultural agency. The best pupils from the elementary schools enter it. Here is made the closest contact with the higher institutions of learning throughout the state. From the small high school go out each year one or more pupils, destined, in college, and later in professional or other career, to occupy prominent places. The teachers in the small high school are frequently almost the only college graduates to be found in the community. They do not always live up to the possibilities of this position, but in proportion as American colleges recognize secondary-school teaching as a distinctive profession, we may expect that they will do so. Under the conditions of reorganizing secondary education, it will doubtless happen that the small high school and the Intermediate or Junior High School will be drawn more closely together. It is to be hoped that in time each community able to maintain a small high school will be able to provide, in charge of this, a principal who will, himself, be permanently a resident of the community and identified with its larger cultural and civic life.

But the small high school as now constituted has

before it a very hard task. Its standards of accomplishment, set by tradition and custom prevalent in more populous centers, are those of the larger high schools and the colleges. The small high school has practically had no voice in determining either the standards or the scope of the work which it should undertake. It bows in peculiar measure under the weight of the tradition of college entrance requirements. It is urged to relate its education to the community, but at the same time, in order to teach Latin, French, German, algebra, ancient history, and physics, among other subjects, it has a task, already, which it can only half perform. The high school is usually staffed by very young teachers, who represent little or no training for teaching, as a result of the college courses which they have taken, and who, on the pedagogical side, have almost everything to learn through the hard knocks of experience. Frequently the small high school is poorly housed, and almost invariably it has but meager equipment, either of books or of apparatus. Under these circumstances, therefore, it is not to be wondered at that the problem of the small school is of such magnitude and complexity as, indeed, rarely to be talked about. We discuss the problems of the rural elementary school, but few persons rise to discuss the problems of the small high school.

The question is sometimes gravely raised, in academic and administrative circles, as to whether a high school ought really to be approved if it has only two

teachers, and sometimes it is asserted that a high school cannot do valuable work if it has as few as three teachers. From one point of view, these questions are fundamentally absurd. They do not approach the subject from the right direction. They presuppose that the standards of what constitutes a high school have already been settled—as, indeed, too frequently they have by purely external authority.

The question should rather be faced from the point of view of the opportunity possessed by this school in the community which it serves. What can be done by two teachers (or three teachers), presumably fairly well educated and equipped men and women, towards the further education of from twenty-five to fifty boys and girls coming to them at substantially the age of fourteen, after having completed an elementary-school education, and prepared to stay from two to four years? Looked at independently of tradition, college entrance requirements, and the standards imposed by outside authorities, the educational opportunities of this sort of school should properly be regarded as very great, indeed. These opportunities naturally will have to be found largely in the field of liberal, as contrasted with vocational, education. As discussed elsewhere, vocational education involves a large degree of specialization, and even if in a rural community the chief calling for which equipment is to be given to boys is that of farming and to girls that of home-making, nevertheless, even

here we have requirements on the side of efficient equipment and facilities that cannot be met by the small high school.

It is, therefore, from the standpoint of its opportunities for liberal education — that is, education, on the one hand, for broader citizenship, and, on the other hand, for personal culture — that small high schools should be approached. What it can do in this direction has, so far as I know, never yet received adequate or scientific consideration. Certainly we know that it cannot effectively teach Greek and Latin, and French and German, and algebra and geometry, and physics and chemistry, and ancient history and United States history, and various other subjects, as these are now organized, to advantage. We have to raise the question, however, continually, as to whether the teaching of these subjects as now organized and taught is necessary to a liberal education, adapted to the requirements of an American community in the first quarter of the twentieth century. I believe there is only one way of facing this problem. High-school principals and teachers, and others interested in the more effective reconstruction of secondary education, must persistently face the question as to what constitutes a liberal education for the youth of our day, and, having decided this, then approach the question as to the ways and means of meeting it. Certainly there is extant, so far as I know, no adequate discussion of what the small high school can do in this

direction. It will be said that the small high school has never been able to consider this question because it has been constantly engrossed in meeting the requirements of the colleges. This is doubtless true; but it is also a fact that if at any given time college entrance requirements were completely relaxed, and high schools were told to make effective programs independently of these, our high-school teachers and principals would not know what to do. They would, I imagine, present about the same extent, if not the same quality, of foreign language, history, mathematics, and science as before. In some quarters, in recent years, if given the freedom here suggested, they would have introduced a measure of textbook study of agriculture, with, perhaps, some manual training and household arts, if the community could be persuaded to give the necessary equipment.

But, in the sense that school teachers and other educators are to-day prepared to substitute for the program which has been largely imposed by the colleges, another making for a more fundamental and vital liberal education, I think there is little or nothing to be said. High-school people have not been disposed to consider this problem; they have accepted the leadership of the higher institutions in an attitude of unquestioning submission.

This will not always be so. Even now, we recognize the beginnings in American secondary education of the habit of independent thought. High-school men,

especially those who have been some years out of college, are more and more disposed to respond to a vague, but none the less real, public demand that they study the whole question of educational values, independently of what external agencies may suggest or require. I believe that within a very few years we shall have a fairly well developed scheme of liberal education adapted to the small high school, and which will have been worked out independently of outside agencies.

It is one of the purposes of this paper, however, to suggest steps that may at once be taken by high-school principals, particularly if these are disposed to act collectively, in the direction of opening the way for independent action. The first proposal given below is made in the conviction that, for the present, the small high school cannot afford to disregard the needs of that small proportion of its pupils who are preparing for college, partly because these pupils represent some of the best ability which the high school possesses, and partly because a vital contact of the school with the higher institution of learning constitutes, under present conditions, a valuable resource, both for the school and its community.

In recent years, the tendency has gained ground for the colleges of the country to define their admission requirements in terms of units, and within each unit to define the content of study which is expected to measure up to the unit. Furthermore, it has been the

custom of the colleges to impose, in terms of the number of units required, a sufficient number of studies practically to fill the time of the student preparing for college for four years.

Now, it is not practicable for the college to relax its requirements in this direction wholly and at once. It can, however, I believe, be induced, whether in the East or the West, to relax its requirements in a degree, if the high school can offer something of a guarantee that the time thus released will be used to good advantage. The proposal which is being made in Massachusetts, therefore, and which might well be made in other States, is, that the colleges, acting in concert, reduce the number of units with reference to which they make specific requirements as to subject matter and standards, so that these need occupy but a portion of the preparatory period of the pupil. More specifically, it is proposed that where 15 or 16 units represent the total amount of college preparation, the college shall hereafter test the pupil, or pass upon his work in an accredited school, only to the extent of 12 units, taking the word of the high school that, as to the remaining time, the pupil has made a good record in studies which the high school, itself, deemed important in his education, but with reference to the content, scope, and methods of teaching which the college, itself, does not presume to prescribe.

It is my conviction that if, throughout the country, the small high schools will, as regards their students

who are preparing for college, collectively prevail upon the colleges to pass upon only twelve units (which would be three-fourths, or at most four-fifths, of their preparation), then in time we can go farther. The colleges may then be expected to reduce to ten, or even eight, the number of units upon which they will pass in detail. This pre-supposes that at each step the high school, itself, will utilize to good advantage the time thus set free.

Now, as a further step in the development of this plan, it is proposed that the course of study for the first two years of the high school shall be governed primarily by the requirements of those who are not preparing for college, with the understanding that during the last two years of the course the studies presented by the school, the methods of teaching involved, and the standards of scholarship maintained, shall be determined primarily by the needs of the pupils who are going to college. This plan has many advantages. In the first place, it is well known that of all the pupils entering the high school, substantially one-half will have dropped out by the end of the second year. This plan enables the school to give these pupils large consideration during the time that they are in school. I strongly favor, personally, the plan of recognizing a distinctive two-years course, terminating for the average pupil at sixteen years of age, and I should also have the successful accomplishment of this course testified to by some suitable certificate or diploma.

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Again, it permits the high school to exercise its freedom and ingenuity during the first two years, quite independently of the requirements of the college or of secondary education, itself. I see no reason, for example, why during these first two years the school that is capable of doing this should not develop courses in English literature, general science, social science, and one or more phases of the practical arts, quite completely in accordance with the ascertained needs of the pupil and of the community, and quite independently of anything that tradition suggests in these subjects.

On the other hand, by giving the last two years of the course chiefly to college preparatory students, we shall be considering the needs of those who, in the main, anticipate going to college, and for whom, probably, a certain amount of quite specific preparation for the successful execution of college work will be required. For my own part, I should be glad to see a program so arranged that during these last two years the pupils would have obtained very specific and rigorous drill in those tools which, such as English expression, modern language, algebra, etc., may have demonstrable value as needed instrumentalities in the pursuit of higher studies. Furthermore, I should be glad to reserve to these two years the more exacting study of one or more of the sciences, a period in history, and perhaps Latin, which, while not strictly instrumental to subsequent college work, neverthe-

less furnish satisfactory examples of fields of intellectual effort wherein more or less rigorous pedagogical methods are desirable.

For the present, if the college is to control as regards twelve units of the admission requirements, then it will be necessary that during the first two years at least two subjects — probably a modern language and algebra — shall be carried on. If, however, the time should come when the college will impose its exactions as regards eight admission units only, it might be advisable to arrange a program whereby practically all of the college preparatory work should be met during the last two years of the course, leaving the first two years entirely free to give whatever education seemed desirable, including, of course, if necessary, one or two electives in foreign language and, perhaps, mathematics.

Such a program should not, however, be undertaken by any given school until in its teaching force and in its course of study it possesses the capacity to give an education during these two years that is really worth while. In order to achieve this end, I believe it will, sooner or later, prove fundamentally necessary to divide the studies offered, or even portions of given studies, into two distinct groups, with reference to one of which quite exacting standards of scholarship shall be maintained as regards the ability of the pupil to stand tests, to explain, and interpret what he has learned, and to retain it as a permanent possession;

and with reference to the second category, that the standards of approach shall be those characteristic of learning primarily for appreciation. This distinction, made between studies on the one hand, or between definite portions of such studies as natural science, social science, practical arts, etc., ought to be of considerable value in reducing the amount of time necessary for the actual teaching required. Personally, I believe that we shall yet work out a very extensive scheme of liberal education, based upon what is here called the standards and methods of appreciation. I believe that by the use of libraries, home reading, and amateur constructive work in the practical arts, we shall be able to achieve valuable ends with a very great reduction of the teaching force now required. We sometimes discuss, for example, naïvely as to what should be the standard size of a high-school class, and we usually arrive at the conviction that such a class should not be very much larger or smaller than twenty-five pupils. Now, if we could once disassociate ourselves from our traditions in this respect, we ought to recognize the fact that for some lines of teaching, a class of twenty-five is much too large, while for others it is much smaller than is necessary. There is a great deal that high-school pupils can learn through lectures, for example, delivered to large as well as to small groups. There is a great deal that can be accomplished in the field of liberal education through literature, social science, art, and other subjects through

wisely directed home reading, with the teacher acting the part of conference counselor from time to time. On the other hand, in those studies in which the outcome is expected to be certain, definitely organized knowledge and quite specific forms of "ability to do" or to execute, it may frequently well happen that a group of twenty-five is far too large to obtain efficient results, as, for example, learning to speak a foreign language under the so-called "oral methods" of teaching.

The ultimate outcome of the plan of coöperation with the colleges here proposed would be, in my estimation, a complete reorganization of college-entrance requirements, similar to that discussed at length in Letter III. Briefly, the proposal there set forth is to the effect that the college shall maintain three kinds of tests, as regards the qualifications of those seeking admission. In the first place, the college shall test the ability of the student to use effectively those tools which are indispensable in college work. The only one of these that is of universal application is English expression. For some college courses, mathematics also will be required, and for some others, it is alleged, a knowledge of French or of German. Beyond these, I know of no subjects which now stand in a strictly instrumental relationship to college courses.

In the second place, the college will test the ability of the pupil in certain fields of mental activity, but without reference, at all, to the exercise of these men-

tal powers in preindicated fields of material. In other words, ability of the students to use specific forms of memory power or specific forms of reasoning power, or his possession of certain other specific ability to use reference material or to organize his thought, should be tested, but always in fields of knowledge indicated by the secondary school itself. The object of the college in its inquiries has no reference to the content with which the pupil works, but rather refers to his more or less specific habits of working, established in these fields.

Ultimately, our experience and research in this field will doubtless give us much more adequate information as to so-called "mental training" and the means by which it is to be realized. When that is done, the high schools can, perhaps, move more directly towards these goals than they are now capable of doing. Until, however, we have more light, we must assume that the mental powers which the colleges have a right to ask in their entering students shall be capable of application in fields of matter with which the students have already become familiar.

In the third place, the college will also have the right to test the pupils as to their possession of some of that general knowledge and appreciation which characterizes a person possessing, up to this point, a liberal education. Here again, however, the content with reference to which the college exercises this requirement should be indicated by the secondary

school, itself, since it may be assumed that no two individuals will possess personal culture in exactly the same fields; and, indeed, it is highly desirable that individual interests should largely be consulted in this connection.

Finally, whatever program of action is indicated for the small high schools of the future, it ought to be entirely clear that few, if any, results will be achieved without clear thinking, clear definition of plans, and concert of action. I have even maintained that the colleges of America would do anything which the secondary schools in a concerted way would ask of them. I still believe that this is fundamentally true. In fact, I would go farther and say that whenever the authorities in charge of the small high schools of this country have worked out, in coöperation, what they regard as a reasonable program to be met by them, on the one hand for those who are going to college, as well as for those who, on the other hand, are not going to college, then the colleges will find one way or another of meeting the standards thus indicated.

XII

To a Conference of Secondary-School Teachers :

It is certain that the largest single problem to be solved on behalf of the high school of to-day is that of a clearer definition of the valid aims of secondary education. But it is, nevertheless, true that many teachers of secondary-school studies still believe that the high school has already clearly defined aims, and that the great problems which confront them consist of the development of better methods of realizing these aims. It is, therefore, only fair that the differences between the aims which now control, and those which should control, be described and defined.

When it is said that the aims of secondary education as held to-day are defective, reference is made to one or the other of two weaknesses which characterize such aims as are now held. Either the purposes themselves are lacking in social validity — that is, there is no demonstrable evidence that they are actually worth while in society; or else they are so vague and intangible that they exercise no real influence upon choice and development of the means and methods by which they are supposed to be realized. A few illustrations may make this clear.

Every secondary-school teacher is, of course, conscious of certain quite definite aims in his or her work.

A teacher of Latin, first of all, is endeavoring to have his pupils learn Latin in accordance with long-established standards as to the proper mastery of that subject. The conscious purposes include specific degrees of ability to write or compose Latin prose, to translate specified classics, to analyze and parse Latin sentences, and to comprehend and describe the geographical, historical, and anthropological facts which are associated with, or suggested by, the study of a given Latin classic. The teacher may have in mind certain types of written examinations given by the school itself, or by some outside agency, such as the College Entrance Examination Board, as indicating standards of proficiency which it is his obligation and ambition to meet. Now, throughout the entire field of secondary education, as well as in the study of Latin, teachers and other school authorities are, as a rule, clearly conscious of these immediate or proximate aims of their work; and a large amount of readjustment of method is constantly going on in the endeavor to find more effective means of realizing these immediate aims.

But the fundamental difficulty at this point is that these aims do not in themselves give satisfactory evidence as to their social validity. Granted that the immediate aim of a teacher is to teach Latin, or mathematics, or history, towards certain quite clearly defined ends of power, and in certain quite specific ways, nevertheless, a constantly increasing number of peo-

ple concerned with a more valid realization of the values inherent in a sound social economy are to-day asking, in all seriousness: "Of what value is it to master so much Latin, or so much mathematics, or so much history? Wherein in a scheme of sound education does such particular mastery figure? For whom have these subjects value? Toward what cultural, or social, or vocational ends do they actually contribute?"

A careful examination will show, I believe, that we have in secondary education, as now organized, a wide range of immediate aims which are not, in themselves, necessarily valid, as judged by the needs and possibilities of a sound social economy adapted to the needs of the twentieth century. From my point of view, this is the necessary basis of the reëxamination to which all secondary education is being and should be to-day subjected.

"But," you will say, "educators have not been unaware of these defects of aim. They have, indeed, been engaged in setting up more ultimate aims for secondary education, the social validity of which none can successfully dispute. Much effort has, in recent years, particularly, been expended in the endeavor to define and state the ultimate purposes of secondary, as well as other forms of education." But, while admitting that such efforts have been made, it is necessary to show that the resulting formulations of aim are not, in themselves, sufficiently clear-cut or definite in many cases to exert the slightest effect

upon the character of the studies which we offer, the means and methods adopted in teaching them, or in ascertaining the classes of students on behalf of whom they are recommended or prescribed. In the literature of contemporary secondary education much use is made of certain vague phrases, as designed to express the ultimate educational ends to be achieved by secondary education, for example. Writers of one group speak often of "character" as being the chief end of education. Others use the phrase "social efficiency." Still others contend that training for good citizenship should be our chief goal. There are those who argue that if secondary education results in producing the trained mind, or in giving mental discipline, all other values will be easily realized through the achievement of this fundamental one. More recent writers suggest that the best formulation of the end of education may be expressed as "capacity for self-direction," while others use a somewhat similar phrase, "self-realization."

Now, no one can dispute that these general phrases (called, quite justly, "omnibus" phrases) are all expressive of purposes of the highest worth. But the difficulties which they present, as regards the organization and administration of secondary education for the present situation, are that they do not, in the slightest degree, enable us to choose among possible subjects of study, to adopt methods of instruction, or to test the actual accomplishments of particular

methods of teaching. Has any one ever known of any modification taking place in the methods of teaching algebra as a result of the attempts to make education result in greater social efficiency? Do we modify our methods of teaching Latin as the outcome of any clear-cut notion of what we mean by "mental discipline"? As I see it now, all of the above phrases are quite interchangeable. That is, the content of each one could be put under the other, under ordinary circumstances, without any observable loss.

In reality, these vague phrases do not express aims or purposes. They may express aspirations, but it seems to me that they are more nearly comparable to "castles in Spain," which many of us are prone to build, but in building which we utilize, usually, our most lazy hours, and with little attention to the working out of structural and other difficult details. It sounds well, in public discussion, to insist that the purpose of the "liberal education," which is now offered in many high schools, is "social efficiency." It is only when we are asked definite questions as to how our studies of ancient history, of physics, and of chemistry, as now carried on, actually contribute to social efficiency, that, in a somewhat irritated way, we fall back upon ancient dogmas, finding ourselves quite incapable of advancing any conclusive evidence as to how our studies "function" in the way claimed.

Secondary education to-day is, therefore, determined by two distinct sets of aims — the one concrete,

immediate, and proximate, but without demonstrable validity in the large majority of cases; and the other remote, vague, and intangible, for most purposes unreal, and in the last analysis unserviceable as indicating choices of ways and means towards their effective realization.

Now, it is my firm belief, that within the next generation we shall work out a fairly extended scheme of social values for secondary education, which will occupy a position perhaps midway between the two sets of purposes suggested above. These social values will have, on the one hand, demonstrated social validity, and on the other they will be sufficiently definite to enable us to work back and adapt the means and methods requisite for their proper realization.

A few illustrations of what I have in mind may make this clear. In all our high schools to-day, for example, we are teaching English composition. Perhaps there is less dispute as to the value of this study than as to that of any other in the secondary school curriculum. It is generally accepted that a fairly high degree of ability to communicate ideas in writing is a social asset that is almost universally worth while. Now, it seems to me, that with comparatively little further analysis in this field, we shall be able to work out a rather clear-cut scheme as to the specific forms and degrees of power in written (and also in oral) expression which it is worth while should constitute a part of the attainment of at least the large majority of

young people who have received a general secondary-school education. In this field, at any rate, we should be able to define quite clearly our goals, in terms of valuable ends which no one can dispute. Having done this, we shall then be in a position to work back to a study of the means and methods by which these ends can best be realized. Doubtless we are at the present time expending an undue amount of effort in high schools in teaching young people to write English. It is equally certain that we are spending far too little effort in teaching them to speak English fluently and with effect.

But neither in the field of written nor of oral English expression have we yet analyzed the specific powers and capacities which it should be our purpose to produce; and until we shall have carried this analysis much farther than has yet been done, it seems to me that our efforts to find suitable ways and means must be largely futile, and of a "hit-or-miss" character.

Let us take another illustration from the field of physical education. It would certainly appear that there is a certain body of organized knowledge, having an intimate bearing upon the maintenance of personal health, which might well be the possession of every person. When we shall have defined what this knowledge is, and the extent to which, when acquired by the average individual, it will probably "function" in hygienic and sanitary action, then we should have before us some fairly clear-cut goals of effort in physi-

cal education. Our quest for effective means and methods in such education should then be somewhat more purposeful and intelligent than is the case at present.

Here attention should be called to the fact that in the field of vocational education, which is now developing so rapidly, the problem of defining valid educational ends will be much simpler than in the fields of cultural and social education. Capacity in an occupation is a fairly definite thing. The technical knowledge needed by the engineer, or the machinist, or the teamster, can be somewhat readily ascertained. In the course of the next few years, we should be able to describe very adequately, indeed, the specific ends of knowledge, skill, and ideal which should enter into the more common vocations, to a degree which will enable us to adapt serviceable means and methods for their attainment. This will not come wholly without a struggle, however, because even here one can detect much evidence of the long persistence of academic traditions. In the earlier stages, for example, of the training of craftsman, great stress was laid upon the study of mathematics, while more recently mechanical drawing has been regarded as contributing the supreme gift in all forms of trade training. Both of these ideas are probably, in large part, superstitions, based on ignorance of real needs and possibilities of education for vocations.

Many other illustrations of the possibilities of de-

fining specific educational ends can easily be cited. It ought not to prove difficult, for example, for sincere and competent students to demonstrate the values to the average man of certain specified kinds and degrees of knowledge of French and German. When these values shall have been more clearly defined, the working-out of the means and methods of their realization should not prove difficult.

An interesting stage in the evolution of education is to be found in connection with the two decades of discussion of educational values resulting from the development of the so-called "elective system." Until recently it was the practice of the college, as well as of the secondary school, to prescribe in considerable detail the subjects of study which should be taken by all students alike, or by students seeking a particular degree or diploma. There was then no disposition in any quarter to question the wisdom of those who had established these prescribed lists of studies. It was a case of "Take the entire program offered, or leave it."

But even more than half a century ago, a few persons, like President Wayland of Brown University, and later President Eliot of Harvard, began to favor a "system" whereby, in large measure, each pupil would make up his own program of studies by selection from all of those offered in a given institution. This throwing the responsibility upon the pupil, for making choices among the subjects offered, brought

confusion and sometimes great dismay into both college and secondary school. It involved the assumption that the pupil, in spite of all his immaturity and inexperience, had some capacity to make choices adapted to his needs. The advocates of the elective system were, indeed, not always enthusiastic as to the capacity of the pupil and of his parents to make wise selections among studies offered, but they believed that, in view of the superior interest that might be elicited by work thus taken, better results would follow. President Eliot and some others took what was then the advanced position, that it did not matter so much *what* subjects were studied, as *how* they were studied. This idea, of course, involves a complete acceptance of the so-called "theory of mental discipline," in which the content learned is of relatively little importance compared with the habits and powers of mind developed in such learning.

All educators will remember the extensive debate and discussion of the elective system which took place between 1880 and 1910, and which is not yet entirely stilled. Harvard University, in the administration following that of President Eliot, modified the elective system through introduction of the theory of "compulsory concentration and dispersion" which, on the whole, tended again to exalt the place of the instructor or advisor in mapping out work for the learner.

Now, it is an interesting fact that while the pro-

longed discussion of the elective system represents an inevitable and necessary stage in the general examination of educational values, nevertheless, very seldom, indeed, during its continuance was the question fairly stated from the standpoint of the college, school, or instructor therein who prescribes subjects of study for the students. Rarely is to be found, in the literature of this debate, discussion of the question as to what standards guide the instructor in mapping out a given line of work for a student. The time had not yet arrived when the educational values of subjects were to be questioned as seriously as later. The strongest defense of those favoring the elective system would have been, of course, the inquiry as to how the instructor knew that a prescribed list of studies, consisting, let us say, of Latin, mathematics, and ancient history, represented the most valuable program for the student. It would have been possible to grant every contention relative to the incapacity of the pupil to make a satisfactory selection of subjects, without in the least yielding to the claim that the instructor was, in any single whit, in a superior position to make such selection. He, himself, was dominated entirely by tradition and custom. Never had he made any adequate examination of the actual values achieved through the programs of studies which he favored.

At the present time, we hear less of the discussion of the elective system. A large degree of election now prevails, in theory, in the typical high school, but

we find that a great variety of impediments to its free exercise necessarily exist in the scope of options that can be taken by a pupil at a given time, by the requirements imposed by colleges for admission, etc.

From the standpoint of the development of a science of values of secondary education, the next step, I am confident, will be a careful working out, on the part of educators and students of social economy in conjunction, of a detailed analysis of the social values which it is feasible to attain by educational means. In the first place, the powers and capacities of the rounded socialized individual at maturity will suggest the final goal of educational and other constructive effort. Then, as far as practicable, an analysis will be made of the contributions to this rounded individual which are made, respectively, by (a) heredity, (b) environmental influences not primarily controlled for educational or developmental purposes, and (c) environmental influences, including education, controlled purposefully and directly toward the development of the individual. The third step will be an analysis of the last set of influences, in order to discover which are those that can legitimately be effected by each of the several social institutions which have education as a primary or at least important secondary aim, including (a) the home, (b) the church, (c) the school, (d) the shop, (e) the press, (f) the stage, (g) the club, (h) the street and playground, (i) the library, and (j) the police-power. Evidently, no com-

plete scheme of school education can be evolved which does not take account of the contributions of these and possibly other more or less coördinate educational agencies.

Taking, now, the school in the broadest sense of that word, we shall find that its educational influences can be subdivided under at least four major heads; namely, those contributing (a) to physical education, (b) to vocational education, (c) to social education, and (d) to cultural education. These forms of education are presented in this order because, apparently, that is the order of their importance in society, and the order in which they developed historically as systematic forms of education, in schools or through other agencies.

Under each one of these heads it will prove possible to analyze a series of purposes or values to which, by proper means, the school, itself, can contribute, and this process may be carried back until finally we shall have defined quite specifically the educational means and methods by which these ends are to be realized. This process is in most respects a complete inversion of that which has been historically influential in developing secondary education. The secondary school arose in order to meet certain quite definite ends in the teaching of traditional knowledge or forms of skill for which there was a public demand. The social value of these demands it was seldom considered the function of the school to establish. The

school occupied, rather, the position of the pharmacist offering to consumers any drugs or chemicals which they desire to purchase, without being concerned as to the helpful or harmful character, to the individuals interested, of that which they purchase. The modern conception of the school, especially when it is under public support and control, and when, with reference to its offerings, the large majority of students have small capacity of making intelligent choices, is that the school, itself, must clearly know the value of that which it offers. Pursuing our illustration, the modern school is much more in the position of the intelligent physician, who does not give the patient what he may want, but prescribes for him what he needs and in the light, let us hope, of a clearly defined knowledge of the functioning value of that which he prescribes.

The program herein set forth is one which the educator alone cannot work out unless he has made a very careful study of genuine values, or worths, as defined in social economy. Modern social economy is an outgrowth of sociology and of numerous other sciences which are bringing an increasing amount of scientific knowledge to bear upon the ends that are worth while in society, and the means by which these can be attained. There is no phase of human life which, sooner or later, will not be touched by a sound scheme of social economy. In its earlier stages, it has concerned itself largely with pathological features, just exactly

as in the earlier stages of hygiene the chief concern is the cure of disease. Modern social economy, however, looks far more to the prevention of pathological features than to their cure, and it tends to include still more comprehensively all programs of social construction, that is, the achieving of results, that are permanently worth while. In the fields of the conservation and improvement of health and strength, the promotion of suitable vocational capacity on the part of all persons, the development of habits, appreciations and ideals that make for good moral and civic behavior, and in the enhancement of various positive forms of personal culture, modern social economy finds its tremendous tasks. In its larger developments it includes the field of so-called "eugenics," which, in a way, is more fundamental than the others hitherto named, because it includes and affects the original sources of human life, and suggests possible constructive action towards the elimination of unsound strains and stocks, and the fostering of the more wholesome.

In the last analysis, therefore, the new scheme of values which are to govern in secondary education will have to be worked out largely by the social economist, who may, indeed, on rare occasions be an educator also.

In the mean time, what is to be the attitude of the rank and file of secondary-school teachers? The members of your conference, and the members of every other conference of secondary-school teachers, can in

this period of transition adopt any one of several attitudes. You may stand firmly by your ancient customs and traditions, trying to keep the public to your point of view, and criticizing, by means fair and unfair, all new proposals and developments. This is the so-called "stand-pat" attitude, the attitude of an unintelligent and anti-social conservatism.

Again, you may assume an hospitable attitude toward the newer proposals and developments, but without allowing them to affect your immediate practice until their validity has been demonstrated. You may wait passively for the results of experimental and constructive work to be done by others, in the mean time following, with a certain degree of sympathetic interest, the efforts of specialists in these fields. This is not an unintelligent attitude, and is probably the position which should be taken by the large majority of teachers and school principals who feel that their present responsibilities are heavy and that they have, in themselves, little or no capacity for constructive work.

I should hope, however, that a considerable proportion would assume a third attitude; namely, that of constructive coöperation. It may be that this is especially important at the present crisis, when we have so small an amount of actual scientific knowledge upon which to base proposals for reconstruction. I cannot but believe that the advancement of knowledge on the so-called "empirical" basis is of exceed-

ing importance in certain stages of development. I do not believe that, in the present stage of the science of medicine, for example, empirical methods are much worth while; but they were of very great value, indeed, a century ago, when medicine lacked, to so large an extent, satisfactory clues and scientific standards. I am of the opinion that education is now in a position somewhat analogous to that of medicine and agriculture one hundred years ago. I therefore attach great importance to systematic discussion, and discussion carried on in scientific spirit and under the influence of scientific method, as far as this is available.

For example, I believe greatly in the importance of definitions at the present time as a means of economical communication. We educators have been singularly lax, even intellectually negligent, in this matter of definitions. We seem to have been indifferent to clear-cut thinking. Substantial progress can be made, even now, by taking up the various questions that are before us, and, using sound methods of discussion with constant emphasis on clear-cut thinking, the results being formulated in writing, by moving towards improvement in our present practices, being even guided by such educational aims as are now available.

This third attitude may be, in a large measure, the constructive one for the present time, because intelligent coöperative discussion of the many problems of secondary education would gradually reveal questions which need scientific analysis. For example,

the question as to what kind of foreign language teaching is desirable may be pushed to the point of examining the value to persons in certain professional careers of a reading knowledge of, let us say, French or German. When once this position is clearly indicated, it might be entirely practicable by statistical and other studies to answer the question as to what proportion of leaders in our present society actually make use of such knowledge, or feel the need of it for any particular type of work or stage of cultural interest. Similarly, the contention sometimes made, that a knowledge of algebra is essential to the further pursuit of such studies as physics and economics in college, should be examined. As soon as such a question is clearly defined, a scientific examination may be made with a view to finding out how far any particular contention is true.

XIII

To a Teacher of Latin :

IN the present transition period in secondary education, the teacher of Latin occupies a somewhat difficult position. More, perhaps, than the teacher of any other subject, he is placed on the defensive. He recognizes that his subject still occupies a somewhat monopolistic position. Many of the largest colleges of the country still prescribe Latin for entrance, or, at any rate, they make its presentation a pre-requisite for students seeking certain degrees. In many of the largest high schools, Latin is made a requirement in certain courses that are attractive to the more able pupils and those of better social position. Many of us believe that if Latin were placed on exactly the same footing as that on which Greek has been placed during the last few years, it would tend to drop out of the schools, very much as Greek itself has done.

It should be said to the credit of the Latin teachers of America that in this crisis they have manifested unusual energy. They have given a large amount of attention to improvement in the methods of teaching, and have made some interesting studies as to the alleged objectives of the subject they teach. Nevertheless, I believe they have realized that the tide of public opinion has been mounting steadily, not so

much against the study of Latin as against its prescription, direct or indirect, in any form of secondary education. I think the time is not far distant when Latin will have to stand strictly on its own merits. I doubt if any except a few very conservative endowed colleges, catering to quite select classes of young persons, will in a few years find it desirable to make Latin either a pre-requisite for admission or a required subject in regular courses.

In view of this possible outcome of developments now taking place, it seems to me to be of the utmost importance that Latin teachers everywhere should endeavor, in the fullest possible measure, to justify, according to sound scientific standards, the teaching of this subject, either in accordance with present aims and methods, or in accordance with others later to be developed.

To this end, it will be necessary for teachers of Latin to give still more attention to the educational purposes to be subserved by this study. It must be clearly evident to you now that we cannot any longer rest on the old catch phrase "mental discipline," as justifying any study whatever. We do not yet know all that we shall eventually know about mental discipline. I, for one, believe that ultimately a very large function of our schools will consist in disciplining the various powers of the mind, but I do not believe that such training or discipline will be in accordance with methods heretofore followed consciously or uncon-

sciously. I think it is coming to be the conviction of almost all students that to claim for a very specific subject of study, such as Latin or algebra, the possession of peculiar qualities as an agency of mental training is unjustifiable and without demonstrable foundations. In so far as students of the classics in the past have surpassed other persons, either in culture or in the practical activities of life, it is very probable that this superiority can be ascribed to the effects of selection, and not of any particular form of training.

My belief is that the supporters of Latin as a secondary-school study must carry much farther certain inquiries which they have already started. They must be able to demonstrate, for example, if it can be demonstrated, that the study of Latin has an important bearing upon the mastery of English, more particularly, I take it, on English expression. This, I know, is to-day a favorite claim. I am not persuaded, however, that even if there be validity in this claim, we have yet so defined our purposes in employing Latin as a means of English teaching as to have produced any perceptible effect upon the means and methods employed in teaching that Latin. We must go much farther. We must, for example, demonstrate whether the specific values thus realized are to be found in the greater comprehension of the grammatical instruction, greater freedom in rendering abstract ideas into English, or greater comprehension of English because of a knowledge of derivations of English words. A

large variety of specific aims is possible, each one of which, doubtless, could, in some measure, be realized by the adoption of appropriate means and methods.

Surely it is a rather sweeping claim to assert that Latin as now taught, in many cases with hardly any conscious reference to sound standards of English expression, nevertheless contributes important results to English. I should almost be willing to contend, on the basis of my general experience, that many of our pupils studying Latin have their English greatly impaired by the poor English employed in oral translation. I have sometimes thought that we should always recognize two very distinct forms of translation, — the first being so-called “literal translation,” in which the object is to exhibit the degree of mastery of the ideas possessed by the pupil, and the second a form of translation as true as practicable to the original text, but in any case involving clear-cut and effective English expression.

There are other claims as to the value of the study of Latin that surely need to be further examined. For example, it is often asserted that Latin (and the argument applies equally or in greater degree to Greek) should be studied because so many phases of the contemporary social inheritance are derived from Roman sources. This contention is doubtless true; but what does not follow is the value of studying these sources, on the part of the average person seeking a secondary or collegiate education. The derivative effects of

Latin and Greek thought have incorporated themselves in a thousand ways into our contemporary life, as also into our English speech. Why do we assume that it is worth while to study these things in their origins or sources? If this contention holds, would there not be much greater reason for studying the Teutonic origins of our speech and customs, since these are so much more directly related to our folk ways?

Again, the question might be asked as to why the rank and file of our young people should not endeavor to study these origins as described in their own tongue. Perhaps more irritating to many students than anything else, is the assumption that the few years now given to the study of Latin by the majority of pupils really does introduce them in any way to the spirit of the thought and action of the classical ages. Even the layman recognizes that not one out of a hundred of the boys and girls who study Latin is able to read an original Latin text with ease and pleasure, and that he speedily forgets what he has learned, after he leaves school. Are we to assume that a most imperfect knowledge of the mechanics of a foreign language possesses some secret virtue in giving the student insight into the life and customs of another nation, when such mastery is not nearly equal to the mastery of his own mother tongue by a pupil in the fifth grade of the elementary schools?

Again, many educators are aroused to opposition

by the claims of Latinists that a study of that language is essential as an instrument in the study of modern medicine, law, and various forms of natural science, largely because terminologies in these fields are directly based upon Latin roots. This contention appeals to many of us as being one of the last survivals of the ancient notion that, in any field of concrete endeavor, learning could proceed largely through mastery of words, — a contention which has now been given up in almost all modern lines of thought. Far better in medicine, law, and botany, for example, that the student should learn his terms in immediate association with the objects referred to, rather than through a study of their root elements. The direct association thus produced, of the object with its designating term, will be far more useful to him in future life than the approach through the composition of the word. Involved in this position, also, is the thought as to the small amount of Latin that is requisite for this purpose, even granting its validity and the very roundabout approach that must be made through a study of Latin grammar, Latin composition, and classical texts.

Some persons who give most attention to pedagogical devices have been greatly interested in the attitude of Latin teachers towards the use of so-called "ponies," or any other linear translations. These are certainly very extensively used in many high schools and a large proportion of private preparatory schools.

Their employment seems to be blinked at. What is the actual pedagogical value of these aids? There is a widespread tradition that their use is immoral and wrong, but, nevertheless, the whole question has not, as I see it, been adequately studied.

You will understand, of course, that I am not, in the slightest degree, opposed to the continuance in our larger secondary schools, as in colleges also, of the study of Latin, where that subject stands strictly on its own merits without an artificial tariff wall protecting it, and where pupils inclined by virtue of their native tendencies and their home associations to this pursuit, find ample opportunity for the study of Latin. I should hold the same position with reference to Greek. I believe, in fact, that the good results of these studies to a country like ours will come largely through their being possessed by a relatively small number of selected and enthusiastic natures, capable of translating contributions from past ages into our own tongue and our own life. What I am opposed to, at the present time, is the monopolistic position held by Latin, and the indirect result of such position in a stratification of high-school pupils on the basis of this and other studies. I also object strongly to the dogmatic positions taken by the supporters of Latin, in their arguments as to its educational value.

I freely concede that if all protective props were taken away from Latin, many teachers of this subject would have to turn to other lines of work. This

is, of course, to be regretted; but it constitutes no justification for the long continuance of a special tax upon education.

It must be remembered that the teaching of Latin now costs the American public, in the public high schools alone, probably not less than from eight to ten million dollars per year. This is an enormous educational tax, and surely a form of study which on the surface appears to be so little related to the requirements of modern life should find ample justification for itself before it is insisted that such a tax should be paid to support it.

XIV

To a Teacher of Modern Languages:

PROBABLY, both in Europe and in America, the discussions, during recent years, as to improving the methods of teaching secondary-school subjects have been more fruitful in the case of the teaching of modern languages than in that of any other group of studies. A large amount of quite purposeful analysis of definite methods of teaching has resulted. In an endeavor to discover the relative efficacy of different methods of approach, some valuable experimental work has also been done. We have also had some, but not enough, fairly dispassionate criticism, on a comparative basis, of the means and instruments commonly employed.

Under conditions as they prevail in America, however, all discussion of improved methods of teaching the foreign languages is more or less frustrated by our inability, as yet, clearly to define the aims or purposes which should control in offering and teaching these subjects. Broadly speaking, we have as yet no satisfactory agreement as to what classes of our high-school pupils should be encouraged or required to study either French or German, nor have we any consensus of opinion as to how far or in what direction, in the case of any group studying either of these lan-

guages, the teaching should be carried. Personally, I favor the offering of a modern language as an elective about two years earlier than is now the case in American education — that is, substantially at the beginning of the seventh grade instead of at the beginning of the high-school period. With this suggestion, however, I would couple the other, that only a comparatively small number of our pupils be encouraged to take up the study of a foreign language. My conviction on this point grows partly out of what I understand to be the social needs of a people situated like our own, and also partly out of my observation of the comparative inutility of teaching one or more modern languages to the large majority of young people of only average ability, and in a country so remote from intimate and daily contact with peoples speaking other languages.

Furthermore, I raise the question as to whether, in the case of those taking a modern language in our schools and colleges, we should not aim, first of all, to produce high-grade abilities in silent reading. Most Americans, as regards their own vernacular, are fairly well trained along only two lines — namely: the ability to speak, and the ability silently to read. In the latter field of practice, many of our people are becoming more adept all the time. I see no reason why we should not make silent reading the goal in the teaching of a modern language, in which case questions of pronunciation, of grammar, and of the

ability to write and to speak, diminish in importance, or even disappear. Here, again, I base my conviction upon my observation, on the one hand, of what constitutes the usual social need of individuals in this case, and, on the other, my conviction as to what constitutes the comparative uselessness of our efforts in the direction of the ability to speak or the ability to write either French or German.

These suggestions are merely thrown out at present as a basis of discussion, because I am firmly persuaded that the next important step taken by the supporters of language teaching in our American education will be in the direction of defining much more adequately than has hitherto been done the aims and purposes of demonstrable validity which should control in such teaching. Once we shall have agreed upon these, I am convinced that the whole discussion of such teaching can be conducted on a much higher and more profitable plane.

It is a satisfaction to note that in many respects the study of modern languages has been gaining in dignity in our schools in recent years. After a long campaign, most of our colleges have placed French and German on a parity with Latin in their entrance requirements. It is true that some colleges insist on preparatory work in Latin for all of those who are looking forward to a bachelor of art's degree, but the number of these is even now small, and I think that it is yearly growing smaller.

In most places, steps are being taken to make possible the study of a modern language by pupils as young as twelve — and on the question as to whether, if only one foreign language is to be studied at all, it should not be studied during years earlier than is now the case, there can surely be no debate.

There are some questions, however, which the advocates of modern language study will, I believe, be called upon seriously to consider within the next few years. One of these is as to whether a small high school should ever be encouraged to undertake the teaching of more than one modern language. Undoubtedly, we have over-done the study of foreign languages, including Latin, in our high schools generally. This has been largely in response to the demands of the colleges for preparatory work. My conviction is very strong that it is undesirable, and not in the interests of economy, that any high school should undertake to teach more than one modern language.

Again, I seriously question whether any average pupil should ever be encouraged, at any rate during his secondary school period, to undertake the study of more than one modern language. In the interests of efficiency and sound education, I believe that a pupil embarking upon the study of either French or German should be helped to understand that such a study can be profitable for him only if pursued for several years, to the end that, whatever kind of equipment he obtains, he will have received knowledge

which can be put to profitable use. From this point of view, I should urge that the study of a modern language be given as early as the age of twelve, and that, except for grave reasons, a pupil be not permitted to drop it at all during the high-school period, and furthermore, that he be given every incentive to continue it during the period of his college education. If this were done, I believe we should have in our midst a considerable number of persons who would be real masters, at least of a reading knowledge, of one foreign tongue, which would be a not inconsiderable social asset. At the present time it is a severe reflection upon our educational methods that hundreds of thousands, now reaching into millions, of our American people have been permitted or induced to study two or three foreign tongues, but without having attained to any recognizable proficiency in any one of them. This surely indicates a deplorable waste of energy, money, and time. It is the constant experience of travelers abroad that very few, indeed, of American visitors to foreign countries are able to exhibit even a simple reading knowledge of French, German, or Spanish. It is, of course, frankly to be admitted that ability to speak a foreign tongue with fluency can only be acquired by residence in the foreign country, a fact which suggests that in our American schools we should probably not make proficiency in speaking more than an incidental purpose, even if it were to receive that degree of consideration.

I raise the question again as to what are our aims in teaching the language. These questions can be presented in various forms. Following the example of teachers of Latin, it has become customary on the part of some teachers of modern languages to express the general conviction that the study of the modern language constitutes a valuable avenue to culture, that it reinforces the ability to use English, that it furnishes valuable mental discipline, and that it leads to a comprehension of the modern life of other nations, either from the standpoint of its contributions to culture or to vocational need. Now, all of these objects, as commonly expressed, are vague and more or less intangible, and probably have little effect either upon the teaching methods employed or upon the purposes for which the language is studied. It ought to be recognized that, as conditions now are, these objects either are not attainable at all, or are attainable only to a degree that makes their pursuit of very questionable value, indeed. We have no reason to believe that the study of modern language is an agency of mental discipline more than any other study properly followed. I think there is almost no evidence that a given amount of time spent in the study of a modern language reinforces ability either to comprehend or to express English, in anything like the degree to which an equal or less amount of time given to the proper study of English would contribute. Furthermore, it should be recognized that only a very small

percentage of those of our pupils who study French or German, or both, ever reach the point of an adequate understanding of the literature of their own tongue, to say nothing of their very futile dabblings with that of the other language. Finally, either in cultural or vocational fields, it is a question whether, with modern facilities in the way of translations available, English translations do not, for the large majority of persons, place at their disposal almost all of the material which they can profitably employ. There are some fields of scientific research, and a very few departments of literature, in which, perhaps, this is not true; but in these the materials are accessible to, and will be studied only by, individuals of rare talent and power, who will in any event equip themselves specially for this purpose when once they realize their own capacities for profiting by such material. A practical recommendation, therefore, to high-school authorities would be somewhat like the following:

Make available the opportunities to study a modern language as early as the beginning of the seventh grade of the elementary school. Open such work only to pupils of considerable ability, allowing pupils, of course, at any later age, to enter these special classes on showing satisfactory evidence that they are able to profit from such study. Encourage those pupils having demonstrated ability to pursue effectively the study of French or German to continue that throughout the secondary-school period of six years, and into college,

making as their definite goal a very free, fluent, and effective silent reading knowledge of the language itself, particularly as it serves as an instrument of contemporary communication in newspaper, magazine, and book of popular use.

Open to pupils desiring it, in the beginning of the third year of the high-school period, opportunity for the study of Latin, so shaping this study that its effect on a knowledge of the derivation of words, and on comparative grammar, shall be conspicuous.

Finally, in college courses make available to students who already are thoroughly proficient as to a reading knowledge of one modern language, the opportunity to study a second, if the peculiar requirements of their calling seem to demand it, and if they are strongly convinced that such study can become valuable to them. It is recognized, of course, that there are two essentially distinct methods of approaching the study of a foreign language, one of which may be called the imitative method, and the other the strictly logical method. A pupil beginning at the age of twelve, with the organs of speech and hearing still plastic, is supposed to be able to approach largely on the imitative basis, whereas a college student at the age of eighteen or twenty approaching the study with a large equipment of English and one foreign tongue, would follow largely the logical basis.

There are several pedagogical questions that ob-

viously deserve early consideration by you and your colleagues. One of these relates to the attempt, so often made, to teach a foreign language by itself, and with little or no reference to the intellectual content involved in the reading material employed. I raise the question whether the material used in free reading should not be such as will enable the learners freely to converse about, and in terms of, the substance employed in the reading. This does not have anything to do with literal translation. It corresponds, rather, to the attempt made, in teaching English, to have the pupils read silently in such a way as to obtain a definite grasp of a valuable content, and then in their own language to give intelligent rendition and interpretation of this. As I see it, this is the only means which enables us to combine clear thinking with clear expression. I have no confidence, whatever, in literal translation as a means of improving the capacity to use English. I have great confidence in any method which requires a student, from whatever source he obtain a given body of ideas, — whether reading English, reading in a foreign language, observation, or other form of personal experience, — to communicate to another, in a clearly comprehensible and forceful way, the ideas which possess him.

It will be contended, I know, that some persons will find a reading knowledge of a foreign language, and sometimes even a speaking knowledge, an important and necessary asset in their particular careers, — per-

haps in the service of the Government, perhaps in private employment. My belief is strong that this contingency is so exceptional that when it comes we should expect such a person at that time, as in special preparation for that career, to be able to devote a certain amount of attention to acquiring such knowledge as would be useful to him in his occupation. In the long run I am persuaded that this is the more economical method also. If, for example, one is about to undertake a commission which involves a knowledge of Spanish, it would be far more effective for such a person to seek a Spanish-speaking community, where he might, in the course of a few months, saturate himself with Spanish, heard, read, and spoken. Because of his active and definite motive, and the concentration involved, I have little doubt that such a method of approach would be far more effectual than the more or less random methods, with weak motives, that must necessarily be employed in the usual secondary school in these subjects.

The foregoing general observations lead to the following specific considerations, stated dogmatically for the sake of brevity:

1. The desirable and practicable objectives or purposes of modern language instruction will, in the near future, be much more fully and scientifically studied, defined, and given popular statement than has been the case heretofore. These studies and statements of purpose must be made no less with constant reference

to the needs and possibilities of actual and, for the moment, even hypothetical groups of school and college students, than with reference to the abstract possibilities of various forms of language study itself. We must determine how far it is desirable and practicable to produce in, for example, an average secondary-school four-year period, in which we are allowed one fourth of the school time: (a) the ability to get the meaning from (read silently) Spanish newspaper prose at sight (to take this language as an example); or (b) the ability to read Spanish literary selections fluently, including fair powers of accurate pronunciation, grammatical analysis, etc.; or (c) the ability to speak Spanish colloquially and freely, even if with defective pronunciation and disregard of grammatical niceties; or, finally, (d) the ability, among other things, to write Spanish with a reasonable degree of accuracy and effectiveness.

But, equally at least, we must ascertain how far any one of these objectives is desirable and practicable for such potential groups as, for example, (a) commercial students who will probably not receive a college education, and whose need of Spanish will probably be determined largely by the requirements of a seaport commercial house for the reading of Spanish quotations, invoices, and shipping directions, as incidental to their usual work in English; or (b) a few experienced students in advanced work desirous of learning to conduct correspondence in Spanish, and, perhaps, when

sufficiently mature, of taking charge of work in a Spanish-speaking country; or (c) students who will obtain at least a college education and who can be interested in wide and generous reading of Spanish, even if pronunciation and ability to write remain secondary considerations.

2. Particular objectives having been defined, specific short-unit courses for their realization will be provided, thus permitting of intensive and concentrated study such as is not now practicable. That organization of our work which in effect requires the correlated or simultaneous study of vocabularies, literature, grammar, pronunciation, and composition (and which seems to prevail at present) will be reformed so as to permit election of specific short courses, each for the time having a single objective, for example, (a) sight reading; (b) pronunciation; (c) colloquial conversation; (d) vocabulary building; (e) grammar for reading; (f) grammar for writing; (g) grammar for conversation; (h) literature; and (i) correspondence.

3. Scientific study of the valid needs and demands of American youth for any particular form of mastery of a foreign language in the light of the large and varied requirements of our civilization will make clear that, under our conditions, the best interests of society will be served if: (a) a very much smaller proportion of our young persons than at present give their time and energy to foreign language study; (b) only the very exceptional student tries to learn more than one foreign

language, and in that case the second being undertaken only after substantial mastery has been obtained in the first; and (c) every person finally electing study of foreign language is encouraged in every possible way until a thorough mastery, for his purposes, shall have been obtained.

I think, for example, that it will prove wise and expedient to encourage or even permit only a small percentage of students in secondary school and college to embark on the study of a foreign language for any particular purpose, although there might be a "trying out" or finding period for many of those who have shown real ability in the mother tongue. Furthermore, no second language should be undertaken until some definite objectives in the first have been realized. Commonly the objectives in the second foreign language will differ from those of the first. Rarely, if ever, should a second language be undertaken in the secondary school. That should come in college or in business life. The thought that continuous study and thoroughness should be induced in every legitimate way requires constant emphasis in America, where so much superficiality prevails and where in education our people are so often content with the shadow rather than the substance.

4. For several forms or degrees of mastery it is obviously desirable that modern language training should be commenced early — not later than twelve years of age. These objectives include, for example, colloquial

speech, exact writing, easy general reading, and interpretation. Possibly other ends can be equally well achieved as a result of late beginnings — technical reading, and some forms of technical or business writing.

Where economically feasible, modern language study should be available in the junior high school for pupils of twelve years of age.

5. In teaching modern languages we must wholly discard the doctrine of formal discipline. As found in current defenses of modern language teaching, it is an unfortunate heritage from the factitious pedagogy of Latin. In view of current knowledge and uncertainties regarding mental training, the one safe assumption is this: "Teach only those things, and to those degrees, and by those methods, that serve a demonstrably useful purpose in individual economy — useful, that is, as producing, in specific and tangible ways, the culture, the refinements, the sensibilities, the stored knowledges, the moral habits, the ethical ideals, the vocational powers that the world in its best judgment wants and approves. So teach towards the realization of these objects that the appropriate exercise of mental qualities is always involved, and the results of which will persist."

We know little or nothing to-day in favor of any theory of pure mental gymnastics. What experience everywhere teaches us, if we would but see it, is that valuable, and probably always the most valuable,

mental training invariably accompanies the vigorous and systematic pursuit of intellectual objects in themselves worth while. The cumulative massing of the results of this by-product training in numerous and varied fields is what gives us, on the whole, the best mental training of which we have any knowledge.

6. It is of the utmost consequence that we look forward to the teaching of other modern languages than French, German, and Spanish. In centers of population and in colleges certainly, offerings of Japanese, Portuguese, and Russian should be available.

7. It is in the highest degree necessary that the purposes or objectives of modern language teaching should not be defined in the formal terms of college entrance requirements, and especially as expressed in examination questions.

8. If the standards of modern language teaching described above are to be realized, it is obvious that the qualifications of the teachers must be of no mean order. No one, I suppose, would seriously contend that we in America are now giving our prospective French and German teachers in secondary schools adequate preparation for their work. No one who knows would seriously contend that any considerable proportion of them have a real mastery of the language (or more commonly, and more 's the pity, *languages*) they are expected to teach. But, so formal, factitious, imperfect, and inadequate are the purposes we have set for ourselves in these fields that it can hardly be said that we

are conscious of the actual superficiality and ineffectiveness of our teaching.

Now it seems to me that the first problem confronting all persons concerned with the training of language teachers is to agree upon minimum objectives and standards of work which these teachers are to be expected to accomplish. In spite of the large number of articles, manuals, reports, textbooks, and pedagogical books now in existence, supposedly dealing with these objectives and standards, I desire to assert that very little material is yet in existence which meets these three requirements, that is, (a) that it represents in some detail the consensus of judgment of specialists in the field concerned; (b) that it has been approved by a reasonable number of those administrators of education who are responsible for harmonizing the claims and contentions of various specialists, and who must determine educational programs in their totality; and (c) that it has been approved by those men of culture or of practical efficiency who best know what the actual valid demands of the world for special forms of education are.

9. Having given concrete definition to desirable objectives, it is next desirable that in some equally definite way we define desirable qualifications and attainments of teachers. These should be analyzed and each delimited, the essential minimum in any specific case being stated. For example, a person might be reasonably well qualified to impart a certain

degree of reading knowledge of German, but wholly unqualified to teach colloquial speech to children of twelve.

The schools cannot always afford the fully equipped teacher, but division of labor is easily possible here, as elsewhere. There is no reason why a school should not pay for a high grade *part* or *division* of an equipment (absurd as it may for the moment seem) when they cannot pay for the whole. I should even go so far as to rate and certificate teachers of specialties, as, for example, the following: (a) Able to teach simple speech and reading to children of twelve to fifteen (pronunciation excellent; reading ability for simple prose, good; knowledge of technical grammar, incomplete; ability to teach sustained writing, poor); (b) able to teach classical literature and grammar to older youths (speaking ability very poor; pronunciation, bad; general literary knowledge, good, etc.).

10. Next in order is the development of systems of training to be offered by the colleges. Here also, I think, the fraternity of college teachers of modern languages should come together and develop the ability as well as the scientific knowledge wherewith they can speak to the world in no uncertain tones. Let them outline the proper courses for prospective teachers of French, German, Spanish, and Japanese at least as definitely as technical institutions have defined courses for the training of various types of engineers. Let them see to it that the training of the prospec-

tive modern language teacher is begun in the first college year. Let them ascertain very early whether the aspirant (who will hardly be less than eighteen years old) has the previous equipment and natural aptitudes probably essential to the successful prospective teacher in this difficult field. Let them agree upon the specific professional courses (each having definite and fairly specific objectives, it is to be hoped) which will give technical fitness; and let them be prepared to advise as to the related or unrelated courses which will give breadth, culture, and social insight to the person who is eventually to teach so socially fertile a subject as a modern language.

For my part, I think modern language teachers in colleges, who must take responsibility for the training of teachers, would be justified in taking the position that, except in rare instances, it should not be assumed that professional competency to teach a modern language, except perhaps in a limited specialty, can be developed in undergraduate status alone, at least in the present inchoate condition of the professional training of teachers in colleges. A graduate year devoted to this specialty should, in general, be insisted on. I think the college authorities of New England could easily enforce this requirement if they would agree to act in concert.

11. Finally, those responsible for the training of modern language teachers should early proceed to cultivate public opinion regarding the desirability,

almost the necessity, of study abroad as part of the professional equipment of this type of teachers. This requirement is now met, I think, by nearly every country in the world, except the United States, that seriously undertakes the teaching of a foreign tongue. We shall learn to do it whenever we take the teaching of foreign language seriously, whenever we study with some more serviceable objective than merely meeting the arbitrary and unintelligent requirements imposed by college admission committees.

XV

To a High-School Teacher of English :

OF all the subjects of study constituting the curricula of liberal education in our contemporary secondary schools, first place must be given to English. During recent years a constantly increasing share of the time and resources of the high school has been given to teaching it. Higher qualifications on the part of English teachers are in demand. English departments in school and college have developed a large amount of professional literature. Any well-considered request from a body of English teachers, whether addressed to authorities in charge of secondary schools, or to college entrance committees, usually meets with ready and favorable consideration.

Nevertheless, it cannot be contended, as yet, that the teaching of English in our secondary schools, and more particularly our public high schools, is in a satisfactory condition. Although we may give to it substantially one quarter of all the pupil's time for four years, complaints as to the results of our teaching are constant and widespread. It is asserted on the one hand that the graduates of our high schools are unable to spell, to write plain prose, or to express themselves orally with any degree of effectiveness. It is furthermore contended that in spite of the amount of

attention given to the study of English classics, the graduates of our high schools are not interested in good English literature, nor do they have adequate standards to guide them in selecting and making use of good contemporary literature. The demands which the millions of our men and women who have been trained in our secondary schools make on the producers of books and magazines are of a low, rather than high, order. Taste and critical judgment as to things literary, it is asserted, are not yet products of the teaching of English in secondary schools.

These complaints are not of course all justified by the facts. But in view of the certainty that probably twelve million to fifteen million dollars is now annually expended in the United States in teaching English to pupils of high-school age, there are abundant reasons for desiring that better standards of teaching for this subject should be evolved, and that teachers of English should be able to demonstrate, to a greater extent than seems now practicable, the effectiveness of the means and methods which they employ.¹

The first difficulty which I encounter in approaching

¹ The writer is well aware that in a number of high schools of the country there are courses, both in formal English and in English literature, far superior to the average throughout the country. This paper is written primarily with reference to the teaching of English as generally found in America, and especially as exemplified in textbooks, college admission requirements, etc. There is, of course, no intention of indicting all our English teachers, since a number of them have already progressed very far in the pedagogy of this subject.

the subject as an educational administrator is that under the head of English we seem now to include two secondary-school subjects of essentially different character and having unlike aims; namely, *formal English*, and *English literature*. One result of this merging of two different subjects is that the means and methods of teaching one tend to deflect and neutralize those appropriate to the other. So evident has this become to me that, were I responsible for the administration of a high school at the present time, I believe that my first step would be to place the teaching of literature on the one hand, and on the other all that pertains to English expression, under charge of different teachers, who would probably be quite unlike each other in temperament and interests. I should take this action in the expectation that each of these teachers would then develop methods appropriate to his subject, and that the teaching of each subject would as a result have a fairer opportunity for improvement than is now possible. I strongly believe that as a rule the same person cannot teach English expression on the one hand, and literature on the other, with satisfactory results, because, from my point of view, English expression and English literature for their effective teaching require methods of treatment, spirit of approach, and utilization of means which are fundamentally unlike, and even largely incompatible with each other.

Elsewhere I have endeavored to draw a distinction

between that type of educational method which is expected to result in ability *to do, to execute, to construct*, and that other type of educational method the chief object of which is to produce ability *to discriminate, to choose, to appreciate*, and, in the broad sense, *to utilize*. As I now see it, the two types of ends here indicated involve essentially unlike pedagogical methods of approach, — so unlike, indeed, that the teacher habituated to one type or standard may thereby be in a large degree disqualified to comprehend and apply the other.

For example, it would seem to be quite feasible to train a person to write or to render music on the one hand, and to be equally feasible on the other to teach a person to appreciate good music when thus rendered. But the pedagogical methods employed in the two cases probably should be essentially unlike. Similarly, it is possible to train young people to appreciate the results of good painting without teaching them to paint; to appreciate poetry without teaching them to write poetry; and, even in the world of material affairs, to teach them to become properly appreciative of the results of good cooking, dressmaking, or house-building, without necessarily teaching them to execute good work in cooking, dressmaking, or house-building.

From this point of view, therefore, the essential purpose in the teaching of English expression is to give the pupil ability to use certain tools of communica-

tion effectively. On the other hand, the controlling purpose in the teaching of literature is to develop wide and generous powers of appreciation looking to the utilization of whatever there is of value in such literature.

The present unsatisfactory situation as regards the separation of these two phases of secondary-school English is due, of course, to the fact that originally, in our academies and high schools, the teaching of "English" included only the teaching of composition, grammar, rhetoric, elocution and, in some cases, in addition, certain facts *about* literature, but not literature itself. Looking back over secondary-school courses of study for the last fifty years, and noting especially the textbooks employed, it is clearly evident that only within the last couple of decades have our high schools begun seriously to undertake to teach literature as such, at all. Prior to that time, there were to be found, quite commonly, studies of certain historical and biographical facts pertaining to literature, illustrated not infrequently by extracts from the writings of the period or from the author at the moment under consideration. In the minds of the school authorities of those days, these approaches may have been deemed to constitute a satisfactory study of literature; but our more recent pedagogical thought and experience have convinced us that such was not the case, in any valid sense, and that on the whole those studies of facts *about* literature had doubtful educational value of any sort.

During recent years there has been a marked tendency in secondary-school programs everywhere towards the introduction and study of complete literary selections. The practice is to study some of these quite analytically, and to have others read somewhat less rigorously and with greater emphasis on general appreciation. Formerly these selections were often introduced merely as sources of material for work in composition. The literary selection itself was looked upon, indeed, as a "corpus vile" for dissection and practice by the student who was primarily being trained in composition or the mastery of rhetoric. Even in the earlier stages of this process it was doubtless believed that an important by-product of such study would be higher standards of literary taste and appreciation. More and more, I believe, we have come to doubt the validity of even this approach, and to a larger extent we feel that literary selections studied in high schools should be studied for their own sake, and should be used primarily as a means of enhancing interest in good literature, as such, rather than as cadavers in the study of literary anatomy.

Unfortunately, this course of development has brought us to a position to-day where, when the subject of "English" in the high school is mentioned, no one of us is quite clear as to whether English composition or English literature is being discussed. Furthermore, the two subjects are still commonly taught by the same teachers, many of whom still adhere reli-

giously to the notion that they must be taught in that intimate correlation, which is possible only when they are in the hands of one instructor. Then, too, college entrance examinations in English are still shaped apparently on the theory that literary appreciation is something that can be tested by a series of written replies to examination questions. But this fact is also quite explicable when one realizes that until very recently these examination questions were designed primarily to test the pupil's knowledge, either of certain historic facts about literature, or else his ability to interpret in terms suitable to composition and rhetoric certain passages or constructions in literature.

In view, then, of the difficulties of discussing the subject of "English" as a whole, I prefer to divide this paper into two parts, the first dealing with what I shall here call "formal English," and the second dealing with "English literature." "Formal English" will here include all of the studies that might properly be grouped under the head of English expression, together with one or two that do not quite come under that title. "English literature" embraces all studies of good English writing, whether classical or contemporary, when approached primarily from the standpoint of appreciation, including only to a slight or incidental extent studies of technique, formal analysis, and the other aspects of form. The fundamental distinction, in other words, is between English studied as a tool and with reference to ability to apply this

tool to effective communication and apprehension, on the one hand, and on the other to study of English literary products from the standpoint of intellectual nurture, receptivity, apprehension, and utilization in the broad sense, but always with the idea uppermost of training in appreciation.

Some of the purposes for which formal English is taught in our high schools are, of course, so clearly obvious as to need little or no definition or discussion. But I am convinced that in our programs of secondary education as now organized we do not, by any means, deal comprehensively with all of the phases of formal English that properly belong under this head. We have not yet made satisfactory analyses of all the valid demands that are really involved. For we have, certainly, under the head of "formal English," to deal among other phases with the following:

1. The technique of effectively listening to, or hearing, English as spoken or read (a phase commonly ignored, and having as yet little or no clearly defined teaching technique);
2. Silent reading (a subject also frequently ignored in our schools, and the teaching technique of which remains largely undeveloped, notwithstanding the fact that silent reading now plays a many-fold greater part than oral reading in the lives of most of us);
3. Oral reading (a subject receiving much attention in elementary schools, but disregarded or in-

adequately treated at present in our high schools, its value being, perhaps, as yet open to question);

4. Oral communication, other than reading, sometimes called "speaking" (and embracing, as shown later, three or more quite distinct phases, none of which yet receives adequate consideration in our high schools); and
5. Written expression (the subject which, at present, receives the lion's share of attention in high schools).

Now, it is clear that each one of these phases of normal English possesses, or should possess, a considerable teaching technique peculiar to it alone, and that, besides, there are some technical elements of teaching method common to two or three phases. For example, a knowledge of spelling is essential only for written expression, while on the other hand right habits of pronunciation apply mainly in oral reading and in speaking. It may be thought that a knowledge of grammar is essential to all phases, but in practice it will be found, I believe, that whereas for purposes of speaking a knowledge of certain forms of grammar is essential, for purposes of effective silent reading the grammatical knowledge required may be of a quite different character. Similar considerations apply to the studies commonly included under the term "rhetoric." Except in the case of the man making literature a profession, the amount of knowledge of rhetoric required for purposes of oral reading and

writing may be comparatively slight; but for the purposes of silent reading there may be certain quite special forms of rhetoric the mastery of which experience might show to be of great value.

Now, it is my firm conviction that we shall not have in our secondary schools effective teaching of formal English as defined above until, under each of the heads suggested, besides, perhaps, others, we shall have clearly differentiated and defined the ends, in terms of skill and general power, which we wish to attain, and shall in the light of these have adapted our means and methods of teaching specifically to the attainment of these ends. It should soon be entirely possible to apply quite scientific procedures to the study of the purposes, and to the methods of attaining them, which pertain to some, at least, of these special subjects. Take, for example, such specialized phases of oral expression as pronunciation and enunciation. At appropriate stages in the course it should easily be possible to devise drills and exercises which would, in a comparatively short time, produce very large development in the way of correcting existing defects, and in producing new capacities in these fields. Similarly, in a high school it should be possible to acquaint each pupil, by more or less mechanical devices, with his characteristic defects in spelling, penmanship, and grammatical expression, to enable him by special studies and in a very short time, to attain correct form in these fields, much as in our gymnasiums we now

employ individual exercises and training for corrective and departmental work. Our present practice (or lack of it) in these fields now impresses the educational administrator as being clumsy, lacking in purposiveness, and almost barren of results. The great need in all these directions, as I see it, is greater definiteness and standardization of specific aims, as preliminary to the scientific study of the best ways of realizing them.

But these aims all lie in the field of formal English, and their realization will produce certain clearly recognizable powers of "doing," of using the vernacular effectively as a tool. I would not have it understood, of course, that as materials to be used in the various forms of studies of formal English we should not use good literature. On the contrary, where the situation warrants we should employ good examples and materials for our purpose, no matter from what quarter taken. But we should oppose all attempts to use the same literary selections as sources of materials in the study of English expression and as a means of developing literary appreciation. The two purposes, I think, are opposed, and are rarely attained through the same methods of study. There may indeed be fundamental conflict between the best methods of attaining these unlike ends.

On the other hand, I think we must sharply distinguish, in all work on English expression, between the pupil's use of materials which others have organized,

and materials which grow out of his own experience and which he, himself, must organize. Take as an example of this the study of "speaking," so-called, or oral expression (not including reading aloud). There are at least four fundamental forms of oral expression, each, within limits, having its own technique, and, because carried on under essentially unlike conditions, each requiring systematic training adapted to it. These forms are: (a) ordinary conversation of the "give-and-take" type, where each speaker presents a ready "cue" or stimulus to the other; (b) the sustained presentation of his own ideas by one person to another; (c) sustained communication of his own ideas by one person to an audience of others; and (d) so-called "reciting" or "speaking" to an audience where the person speaking is merely rendering the thought of another, and is free, therefore, to confine his efforts mainly to the matter of form of presentation.

The general subject of the differentiated aims in the study of English expression, and of devising suitable exercises and methods for realizing each, would admit, if time permitted, of extended discussion. Many of our teachers of English greatly overestimate the effects of what is sometimes called the "carry over" of training from one subject to another. The question, for example, as to the value of oral reading, especially in elementary schools, is still unsettled, but many teachers insist that it has large value in teaching pupils to speak effectively. I very much question this,

and believe that the whole subject should have careful examination. Again, in such a study as grammar, I question very much whether a considerable amount of those phases which when learned may enable a person more clearly to appreciate constructions in that which he reads, will carry over into the field of oral expression when he is endeavoring to convey his own ideas. In fact, it is very possible that much of our so-called "English" teaching in the high school actually operates detrimentally in the field of oral expression, when that involves the organization of the individual's own experience and ideas. I am a strong believer, for example, in the value of the so-called "study of elocution"; but it seems to me that this subject, when taught, must be very carefully defined and restricted, and must not be regarded as more than a partial substitute for systematic training in the expression of one's own ideas, — a form of activity the demand for which is constantly growing in modern life. Most of our teachers are almost helpless in the matter of training pupils in the expression of their own ideas in a sustained form at present, because we have as yet developed no definite aims and almost no teaching devices to this end. But here, as in other fields, I contend that we shall not have a proper development of needed devices, including teachers' manuals, and textbooks, until a clear-cut demand, based upon an analytical demonstration of ends to be met, has been made for such material.

I think it may generally be assumed, now, that it is worth while to teach literature in the public high school. The term "literature" in this connection is variously interpreted, but unfortunately it is still restricted in much educational discussion largely to those classics which have, by general consensus of opinion, come to be regarded as composing in part, the world's best literature. Our formulations of the purposes for which literature should be taught are still exceedingly nebulous. We possess in reality faiths rather than convictions based upon knowledge, as to the value of this study, a situation which is characteristic of almost all departments of secondary education. Nevertheless, we are most of us prepared to accept the validity of this faith in the value of the training in appreciation to be derived from the study of English literature.

I do so strongly because of my conviction that the public high school should be, first of all, an agency of general culture and of preparation for citizenship, the vocational secondary school being something quite apart. In the vocational school, of course, literature might also be continued as a separate subject, occupying very much the place that literature does in the home of the cultivated worker who gives the best hours of his day to his calling and uses literature as a means of personal growth and recreation during hours of leisure.

But in the general high school, the time should be

given largely to growth in culture, and all that that term implies. For this purpose, I firmly believe that literature is the largest and most important single agency available. It is by far the cheapest and most widely diffused form of art. In its presentations it conforms to the requirements of an age which is growing strong in capacity for abstract thinking, and which requires progressively less of direct appeal to the mind through the media of taste, smell, sound, sight, and touch. Literature is, on the whole, the most varied and flexible means of art expression. It gathers into itself the widest range of interests and forms of understanding. A well-known writer has, indeed, expressed the opinion that the development of the moving picture will be such in the future as to cause this invention to outrank in importance the invention of printing. But for the present, having regard to the availability of printed matter, we must give first place to literature as a means of art presentation.

But for what purposes should literature be taught in our schools? These are not yet clearly defined. Many teachers, for example, are prone to insist that the so-called "moral," or direct socializing purpose of literature should not receive positive consideration. Opposed to this is the fact that a large proportion of the really great writers of the present and of the past have been dominated by a social or moral purpose, and it has been their overwhelming desire to give this purpose adequate expression as a means of affecting

the conduct of large numbers of people. A considerable proportion of the best contemporary writers of short stories and of drama are similarly actuated by lofty moral ideals which they are endeavoring to make influential through the medium of their art. I question very much whether it is legitimate for us to ignore direct moral purposes in the teaching of literature. I do not mean, of course, that we should use literature as a means of preaching to children, nor as a means of making them prematurely self-conscious as to moral aims. But preaching, even, does not do this when it is good preaching. In the fields of patriotism, family life, business relations, and moral conduct generally, the translation of human experience through literature towards distinct and demonstrably "worth while" social ends becomes easily possible, and, when rightly managed, should in no way tend to make the pupils precociously conscious on the moral side.

Many teachers of literature believe, as do many writers and reviewers of literature, that the æsthetic or "fine art" appeal in literature should receive chief consideration in the schools. I wonder if this is not a doubtful end, which savors very much of the ancient contention of "art for art's sake"?

It is not to the artists, but to those who are interested in constructive developments in society that we must go for interpretations in this field. Broadly speaking, it does not appear that the ideal of "art for art's sake" has ever possessed much vitality. Tem-

porarily, it may have served to lift mediocre artists above what, for them, were the dangers of responding only to the more sordid aims of their profession. But, after all, art is but an instrument. It is an instrument of human culture, of expansion, and of development towards higher plains of action. It is an instrument that, used under certain conditions, produces types of valuable social results, in the broadening of individual character, in the enhancing of desirable activities, and in the definition of means of achieving ends which the world needs, appreciates, and values.

Literature is sometimes looked upon as a means of recreation, of relief against the tedium of monotonous employment and bodily fatigue. Undoubtedly this is an end that is important, and one that surely, as a by-product of the teaching of literature, can be made to have much value.

As pointed out above, it was apparently not the intention of the secondary school originally to teach literature, but, following the traditions that prevailed in other branches of learning, to give the pupil mastery of certain facts and methods which, after leaving school, he might, himself, apply to the pursuit of literature as a study for appreciation, or as a field of productive activity. Thus the attempt was made to teach the history of literature, including its various stages of development, the more important writers in each, all involving a considerable emphasis on such details as dates, titles of productions, etc. But gradually

there has been a lessening of the importance attached to these bare facts, and a constant tendency to supplant brief textbooks on literature by complete selections. Furthermore, while originally these selections were made almost wholly with reference to the importance of the writers and the part which they played in any particular epoch, the tendency in recent years has been to respond more to the dominant interests and needs of learners, and hence to make relatively larger use of selections from modern literature. This tendency is important, and deserves careful consideration by all teachers who are interested in forecasting the final outcome of present inclinations.

From my point of view, I believe that these tendencies have only begun to be effective, and that their ultimate result will be the erection of a splendid secondary-school subject, to be known as "English literature," and which will be organized and administered quite independently of the teaching of the various phases of English expression. But in order adequately to promote this development, we must set up for ourselves ends which clearly express social utilities, and the degree of achievement of each of which through any given procedure is capable of demonstration.

Since this is a field wherein opinion must still play a large part, I submit the following suggestions as to desirable further developments: In the first place, for secondary-school purposes, the word "literature"

must be broadly interpreted. It must cover all good reading matter not specifically devoted to technical or vocational ends. The exclusive standards of the "literary artists" must, to a considerable extent, therefore, be disregarded. There must be included all that which has, even for the moment, a large degree of vitality and importance. Biography, stories of travel, vivid interpretations of science, records of personal experience, must all be included, as well as essays, dramas, lyric and epic poetry, and fiction. Furthermore, I believe that experience will ultimately show that, having in view the educational purposes to be achieved, relatively a much larger use must be made of contemporary material than is the case at the present time. This should be done, not only from the standpoint of giving the learner adequate standards through actual experience whereby to select and utilize contemporary literature, but also because contemporary literature, for a large variety of the activities and ideals of life, is more nearly interpretative for the adolescent learner than the literature of past ages. To a large extent, literature interprets life through reference to concrete examples as well as through appeals to the feelings. It has often to deal with the activities which are dependent upon modern developments in the field of invention and human achievement generally.

It is a lamentable fact that a large proportion of the graduates of our high schools at the present time possess little or no acquaintance with the large variety

of instrumentalities, such as the magazine, the newspaper, the contemporary drama and contemporary fiction, whereby the literature of our people and our age is being established and refined. The consequence is that too many of our high-school graduates are, soon after graduation, found reading short stories, romances, poetry, etc., quite without reference to any qualities of worth which these may possess. Very frequently the attitude of teachers (amounting sometimes to an affectation or pose) is that contemporary literature possesses little or nothing of value. They fail to realize that the great bulk of literature is really shaped and finally produced in response to well-defined social demands, and that a large function of any educational agency should be to refine and elevate these demands. If it could be proven, for example, that the teaching of English literature in the secondary schools of the United States for the last quarter of a century has produced little or no perceptible effect upon the quality of our literary output, the implied reproach should apply to the schools themselves, no less than to the producers of such literature.

Another important consideration affecting the teaching of literature as an independent subject in secondary schools has to do with class organization and methods of approach. There is no inherent reason for believing that the present form of class organization is essential, or even desirable, in the teaching of literature. It is quite possible that the right kind of a

teacher could deal with many more pupils or very much larger classes than those that have become traditionally defined for the teaching of such subjects as foreign language, mathematics, and English composition, where the necessities of producing certain types of ability "to do" govern. It is quite possible that a "live" teacher of literature could procure results chiefly by the lecture method, giving perhaps one lecture a week, and giving the rest of her attention to the supervision of the reading of separate groups of pupils. Again, it should not be assumed that in the right teaching of literature, all of the pupils at any one time should be reading the same material. As a matter of fact, the reading might be almost indefinitely varied, the teacher acting chiefly as an inspirational force and in the capacity of seeing that a certain amount of time is given to this phase of the work of the school. A large proportion of the reading should, of course, be done at home, and even the longer vacation periods might well be used by the school for this purpose, since the high school pupils, in any event, will do reading of some kind during those periods. If the reply is made that the pupils will object to vacation reading because of lack of interest in it, then this objection, itself, may have to be taken as a criticism against the literature selected, rather than against the pupils, themselves. Love of good literature is not to be *forced*; it must be *induced* and *built*. I am convinced that an almost wholly new methodology must be worked out for this

form of teaching, and that all our mechanistic conceptions of hours, units of credit, prescribed number of pages, etc., must entirely give way in teaching literature. We shall eventually develop effective mechanisms for this teaching, of course, but they will not resemble those which have become traditionally associated with our regular school subjects.

It should also be obvious that the traditional forms of testing the results of teaching will not apply in the case of literature if properly taught. College entrance examinations in literature ought to be regarded as fundamentally absurd. Written examinations as we now know them cannot in any way test the appreciation that will come from the right study of literature. It may be that the work of the pupils themselves in their more or less spontaneous forms of expression, and especially as revealed through the choices which they make for their reading will become a sufficient means of testing results in this field. It is fundamentally true that the profitable study of literature cannot be pursued without an abiding interest in it. It may also be assumed that only rarely has a pupil no form of abiding interest in some kind of literature. And with this should be placed the assumption that no two pupils need be expected to have identically the same interests. Consequently, the aim of the teaching should be to promote the growth of individual interests and, by suggestion, to expand these into new fields, where practicable.

Finally, it should be noted that very few teachers of English as now trained in our colleges have genuine capacity for the teaching of literature as here suggested. Their interests in literature are not based upon a broad appreciation. This is evidenced by the very small part which teachers of English in high schools usually take in the reading of new books and magazines, and particularly in the appreciative reviewing and communication of their contents. Most of our American communities now possess small groups of people who have genuine interest in contemporary literature, and who make vital contacts with new developments in the fields of drama, poetry, essay, and fiction. These groups of people usually contain, so far as the experience of the writer goes, few high-school teachers of English. But the right kind of teacher of English literature should be a prominent figure in groups of the sort here referred to. Such a teacher would, necessarily, take an active interest, or even part, in contemporary activities having to do with English literature. He would be foremost in debates as to the permanency and value of the innumerable variations that appear from time to time. He would be "up" on the magazines of the day. His influence would be felt in the choice of fiction made by the public library. Young people's reading clubs would seek his coöperation.

Too many of our present so-called "teachers of literature" are dry-as-dust scholars. They deal with

the dead bones of literature; they are chiefly expert dissectors of mummies. They lack inspiring power, and quite fail to appreciate the dominant interests and capacities of adolescent youth. They still teach literature by the methods which have become habitual to them as teachers of composition — giving especial attention to trifling details, remote connections, irrelevant facts.

English literature, rightly taught, can be made the central element in a true liberal secondary education. Let us produce teachers who can give effect to this ideal.

XVI

To a Teacher of History:

MANY of us believe, indeed, that secondary education has already entered upon a period of profound transition. It is a vital question as to whether this transition will prove to be of an evolutional, or of a revolutionary, nature. Certainly profound changes will be necessary in order to accommodate secondary education to the new social as well as pedagogical demands that are being made upon it.

History as a subject of secondary education seems to be hardly in a better position than the other subjects in face of impending changes. As in the other subjects, two classes of aims now control the choice of means and methods in history teaching. The first may be stated in terms of somewhat definite subject-matter to be mastered in intellectual ways; the second, by such vague and undefined terms as "culture," "civic efficiency," "mental training," and the like.

During the last few years there have indeed been many more or less significant changes in methods of teaching history in high schools. In fact far more attention has been given to modifications of method than to clear formulations of aim. The situation has therefore not materially improved, notwithstanding the work of various disinterested committees.

If future improvements in the teaching of history are to be of an evolutionary character, we could assume the continued use of present terms, and of methods of instruction substantially like those now employed. On the other hand, it seems probable that the changes which are to take place will be of a revolutionary nature, — and will therefore involve a discarding of existing terms and of generally accepted frameworks. This will be followed by the effort to create new secondary-school subjects in which it is, of course, to be hoped that the materials of history will finally assume their rightful position.

It is the conviction of the writer that the changes which will take place in history teaching in secondary schools will be of a revolutionary, rather than of an evolutionary, nature. It is his belief that we shall in the future discard, to a large extent, the use of the chronological order in teaching this subject; that our emphasis will center primarily in the contemporaneous, and only incidentally in the past; and that the general outcome will be the organization of a new secondary-school subject which we may call, for lack of a better term, "social science," the primary object of which shall be to enable the pupil to interpret the present and to construct the future, so far as that is practicable in a scientific and reasonable manner.

The objects to be held in view in making such changes would be essentially practical; that is, we should be taught to look upon citizenship of a large

and significant sort as essentially a part of the business of men and women, and to expect that our teaching of social science will be done primarily with the object of preparing boys and girls to become men and women capable of exercising the larger civic functions. Good citizenship, so far as we can now interpret it, consists in part of habits which are in the main derived from other sources than a study of history, in part of ideals, in the making of which literature and history can contribute much, and in the possession of knowledge of present problems of such a nature as will enable these citizens, in some degree, to forecast the future, — because it is only with reference to the future that, in the last analysis, the citizen can actually act. The present moment cannot change, and the past is irrevocable. The future, within limits, is in his hands to modify as he understands and sees fit.

There are several reasons why it seems that the present order of history teaching in secondary schools should pass away. In the first place, most history teaching at the present time is based upon what will here be called the “cold storage theory” of education, or, as it is sometimes otherwise called, the “theory of deferred values.” From this point of view, that which a child learns is stored away, to become valuable at some future time. If he learns it practically without assimilation, as one might learn verbally a rule of grammar, or of arithmetic, the process is well represented by the figure of cold storage. If

such learning is accompanied by partial assimilation, there result what are sometimes called deferred educational values.

In the second place, history, as now studied in secondary schools, is based far too much upon the notion that knowledge and training of a valuable sort can result from verbal learning, such learning being based upon little or no previous comparable experience. For example, a youth who has never participated in any form of political action reads and is told of very complicated forms of political action such as have transpired in Greece, or Rome, or in the middle ages. Reliance upon verbal assimilation is diminishing in almost all fields of education. It probably survives longest in the field of secondary-school teaching.

In the third place, history as now taught seems unable to escape dependence upon a chronological order. Only by reliance upon the chronological order is it able to develop continuity and what, from the standpoint of many teachers, constitutes the only logical method of presenting history. But the chronological order, even where it represents in society a definitive progress from simple situations to complex situations, constitutes a poor basis of learning for the secondary-school student, because it compels him to go back to beginnings that are remote from the fields of his concrete experience. In the study of biology the pupil studies life in its evolutionary order, by taking the simple forms first and complex forms later; but the doubt-

ful success of this method at the best in biology furnishes only a poor analogy for history teaching because in biology it is always possible to bring the simple forms in a very concrete and tangible way within the field of experience of the pupil. Many instances of the difficulty and futility of relying upon the chronological order in history teaching are available.

Some years ago, the so-called "source method" was much in vogue. Heroic efforts were made in all quarters to obtain, from ancient documents and other surviving relics, examples that could be used in secondary schools. Rarely indeed, however, were the sources actually intelligible to the children, although an unusually energetic and enthusiastic teacher could often make the children believe that they were comprehending the significance of some of the materials presented. Teachers who defend the source method, on the ground that it enables pupils to have an objective presentation of the value, or lack of value, of various forms of historic documents, often seem unaware that it is possible, every day and every week, to bring to the children an endless quantity and variety of original source materials from the history which is now daily in the making. If it is of value to teach children the relative uncertainty of various forms of testimony, that can surely be done better through materials that are being brought out from day to day in newspapers and magazines.

Again, any one who has ever witnessed the pathetic

struggles of first-year high-school students to master the material presented in textbooks of Greek and Roman history, and who has caught the pathos of the frequently made statements, that "they could get the subject if they could only pronounce the names," will realize at what cost we endeavor to give children some grasp of history by going back to times and regions that, of necessity, must be so little understood as those of Greece and Rome, many of the features of the civilizations of which even the best of our students can as yet only partially interpret.

It is doubtful whether we have yet a valid content for the word "history," as ordinarily used in connection with secondary education. As seen in the textbooks, what we call history is really a history of certain significant political events, with occasional reference to unusual phenomena or events lying outside the field of politics and dynastic struggle. It would be more accurate for us to describe most of the history available for secondary education as being the history of civic events, or military events, or of political changes. It is entirely proper that we should have a history of this sort, just as it is entirely expedient to have a history of medicine, a history of commerce, a history of philosophical thought, a history of the struggles of the poor against adverse conditions, natural or social, a history of ornament, a history of art, a history of machine manufacture, or a history of exploration. Any and all of these forms of history are

interesting at times, and to particular individuals. When history is thus described, however, it is evident that its interest to a given individual is apt to follow upon, rather than precede, his interest in contemporary aspects of the problems described. I imagine that nowhere is the history of medicine taught previous to the study of medicine. I have no doubt, on the other hand, that an individual who has made substantial progress in medicine turns, sooner or later, to its history with keen interest.

It seems right that the history of education for teachers and other educators should be taken up only when the person has given many years to the study of contemporary education, and should not, as is now the case, sometimes precede such study.

The history of industry is something doubtless to be studied with interest by the man who has made some progress in the industrial world. I would hold, similarly, that political history should follow serious attempts on the part of students to acquaint themselves with contemporary problems of politics, — which represent, of course, this phase of history in the making.

What are the constructive suggestions to be considered at the present time? For the sake of discussion, the writer wishes here to propose certain modifications of our secondary education as regards its alleged objects of training for leadership. In order that there may be a definite objective, you are asked to

assume that only the secondary school is under discussion, and that the secondary school has as its pupils primarily boys and girls, or youths, from fourteen to eighteen years of age. Furthermore, in order to obtain a definite objective, it is assumed that this is the last school which these pupils will attend; in other words, that all of those finishing the work under consideration will pass out into active life, or into professional schools, without any further general, cultural, or civic education.

It is proposed that in such a secondary school there should be given each year a stated amount of time to a subject which may be broadly described as "social science." It would be the object of this study to interpret contemporary social phenomena with a view, as far as practicable, to giving the youth the ideals and the insight that will enable him, for the present and later, to take a due part in controlling social operations making towards human well-being.

Just what complete studies should be included under this head is not now apparent, but some phases of them are fairly clear. For example, we now are introducing into some secondary schools a topic known as "community civics," the object of which is to enable the youth to understand those phases of civic activity which lie well within his field of observation, and with reference to which, later, he will be expected to exercise some control. Local policing, fire protection, road-making, sanitation, supervision

or control of public utilities which are under private management, promotion of more effective economics of the community, — all these are phases that might be studied. It is now evident that this work can be done effectively with youths from fourteen to sixteen years of age.

A further series of topics might be taken up in connection with contemporary national life, including economic movements, labor problems, the "war on poverty," exploration, conservation, simplification of commercial intercourse, immigration, public promotion of arts and science, and scores of other similar topics. In each of these fields it is possible, somewhere in the course of secondary education, to organize materials which will enable youths to comprehend somewhat of the problems under discussion. Other questions, such as racial amalgamation, the exploitation of the tropics, public ownership of public utilities, financial questions, and the like, are all capable of being treated, including, too, questions of the party system, and the like. At a later stage, possibly, the pupils might attempt to unravel some of the intricacies of the activities of contemporary politics. In every case, the attempt would be made to give the pupil mastery of contemporary interpretations with so much of suggestion towards the social action of the future as seems practicable.

Obviously, a large number of partisan or sectarian questions will be encountered in any such study as

this. We can only guess as to what can be done in the future, in connection with these partisan questions. It is entirely possible that the satisfactory solution will be found in bringing to the attention of the pupils the best presentation of the debatable issues from both sides. I have no concrete suggestions to offer at the present time with regard to the treatment of partisan issues, except to say that any public system of education in a democracy which permanently ignores vital questions because of their sectarian or partisan character will hardly suffice for the future. The fact is that we have little or no difficulty in treating partisan questions where they emerge primarily from the domains of science. The difficulty at the present time in partisan questions is found in the fact that most of them deal with what we call "faith issues," — that is, issues that have grown out of past ages, where science was not available, and where large emotional elements have become involved in them. We have true partisanship only where religious feeling, ethical feeling, racial sentiment, and the like, give rise to issues which hold instincts of controversy and combat. Teachers of scientific temper will more and more find themselves able to treat these questions in such a way as not to impose authoritative views on the minds of their pupils.

It should, however, be clearly evident that no extended study of any of the topics suggested above is practicable without excursions into the distant do-

mains of historical or geographical knowledge, consequently, the teacher will necessarily be prepared to take his pupils into remote regions or into the past as soon as they shall have planted their feet somewhat solidly on the ground of reality at home.

For example, in the interests of good citizenship and general intelligence as well, it seems desirable that second-year high schools should know something of the facts, principles, and social consequences of the commercial exchange of commodities. But the near and obvious facts as to this exchange are to be observed right around home; and many, at least, of the principles and consequences of that exchange as comprehensible to youths of sixteen can best be studied there also.

Now once a reasonable mastery of concrete local phenomena is obtained, it is easy for the learner to grasp the more abstract phenomena in the distance — the contemporary trade of China, or the historic trade of the colonies, or of Venice or Carthage. Historical facts and conclusions can be assembled along this line quite expeditiously and effectively.

In other words, it would be practicable, on the basis of close contact and comprehension of local contemporary social phenomena, to enable the learners to make a series of explorations along a variety of historic roads, each followed with pleasure and effect because leading from known territory.

But what will become of the "unity of history"?

In the first place, of course, it would be easy to retort that a conception of "history as a unity" is probably not in any real sense a product of history as now taught. In the second place, so large and full a conception of the unity of history as is really possible to youths under eighteen years of age can best be produced probably by a chronological study of events of great historical importance, to which a few hours yearly can be given from the time when the child is able to distinguish between "now," "the other day," "long ago," and "once upon a time," to the age when the building of the Pyramids, the founding of Rome, the birth of Jesus, the Norman conquest of England, the Discovery of America, and the Declaration of Independence can be conceived with some adequacy in their sequential relations.

We must have better education for democratic citizenship; and in that education we should require that the findings of history shall play an important part, which is not the case now, I fear.

XVII

To a Teacher of Social Science:

AMONG the subjects which will undoubtedly claim first attention in any reorganization of high-school work will be the social sciences. There is a widespread conviction that, for contemporary purposes, a liberal education should inevitably include a considerable range of contact with the practical problems of social life and, as far as practicable, a scientific interpretation of the phenomena observed.

The study of history has long held a prominent place in programs of secondary education. In the days when the curriculum of the secondary school was composed primarily of certain so-called "studies;" the value of each of which was taken for granted without careful analysis, it was natural that the study of history should occupy a prominent place. History represents one of the earliest developed fields of organized knowledge. It is one of the most effective subjects of inquiry to give the student breadth of vision and comprehension of how persons and societies in other ages have lived and acted. Many educators have looked to history as the most effective means of training for citizenship, and perhaps no other subject in the curriculum of secondary education has been

pursued with so little of the practical or vocational motive in mind.

Nevertheless, there are now abundant reasons for believing that a large part of history study as taught in our high schools has no "functional" value in liberal education. The content commonly presented, as well as the methods of instruction, may be, and, I am convinced, frequently are, such that there is no certain outcome of the study in the shape of broader appreciations, a more effective understanding, and more sympathetic ideals that make, or should make, for citizenship.

In the mean time, we have seen develop, in our American colleges, a wide range of economic and sociological studies which are frequently taken in the same spirit in which the so-called "humanities" were studied in former centuries, and which, I believe, for the large majority of college students, now constitute in reality the "humanity" studies to which they almost instinctively incline.

This newer development has not yet appreciably affected secondary education. That it will do so in the near future, I have not, myself, the slightest doubt. I believe the time is at hand when in our secondary schools we shall give our adolescent youth a wide and very concrete contact with social phenomena, and that the controlling purpose will be, in every case, to give a scientific explanation of these phenomena so far as that is practicable in view of the

character of the student, and so far as the materials for such scientific explanation are available.

Ultimately, it is my conviction, the study of history, or perhaps more accurately, the study of histories, will be absorbed under the general head of social science, the materials of history being used primarily as explanatory and interpretative of social phenomena studied, and partly with a view to giving the perspective which a study of local conditions alone could not afford. For the present, however, I would regard it as the part of wisdom in a high school to organize at least one year's work in social science, this to be followed in the third or fourth year, perhaps, by systematic courses in history, modified as far as practicable to conform to modern pedagogical standards.

In view of the conditions of organizing a satisfactory course in social science, I should prefer to have this subject placed not later than the second year of the high-school course, and for some time to come I should hope that it would not come within the range of the so-called "college preparatory studies" at all; that is, studies in which college authorities set definite standards which they test by means of examinations, or otherwise.

For I believe that when social science is organized as a satisfactory phase of liberal education in the high school, it will have to possess characteristics and standards not now found in connection with public high-school standards as ordinarily conceived. The

entire spirit of pedagogical approach will have to be greatly modified. Comparatively little emphasis will be placed upon the acquisition of the same body of exact knowledge by all students alike. The controlling purpose of the course in this respect will be to enable each individual, in as large a measure as possible, to "find himself" in his social environment, and to interpret its principal features sympathetically and intelligently.

Social science as thus conceived must not consist only of economics or civil government, or any other special division of the social sciences, but must take from each and all of these units of study and reading, each unit of which has definite boundaries and lies well within the range of the learner's capacity to appreciate and master.

For the present, I should divide these units into three classes, namely:

1. Those in which the learner cannot only make concrete contacts with the social phenomena involved, but can in some measure control and direct these in his capacity as citizen.
2. Those in which he can make concrete contacts through observation and inquiry, but wherein direct control at his age is not practicable.
3. Those in which he will have to obtain most of his information from reading and other secondary sources.

It is probable that careful analysis of our social

environment will show that with reference to a considerable range of social phenomena it is possible for the student to place himself in a position of active participation as critic and coöperator. In other papers of this series, where liberal education is defined, it is contended that education for citizenship consists primarily in giving the citizen such an understanding of social phenomena as will enable him to command adequate expert service for the discharge of the special offices which have become a part of public control and management. Consequently, intelligent criticism of the discharge of public functions must play a part, and, from my point of view, a very large part, in the education of the citizen.

We have, for example, in the community such specialized functions, under complete public control and direction, as the administration of justice, the direction of the police power, fire protection, disposal of waste, maintenance of highways, administration of charity, the safeguarding of public health and education. We have also given over to private corporations, under some form of licensing or charter, the conduct of various other enterprises with reference to which the agencies conducting them have very direct public responsibilities. These include the supplying of water and light, gas for fuel, transportation of passengers, amusements, sale of alcoholic liquors, etc. With the exercise of all these activities, the student, even as a minor, is in more or less inti-

mate contact, and therefore, under suitable instruction is able to exercise the part of intelligent critic. This criticism, however, to be worth while, must be intelligent criticism, and must involve some knowledge, at least, of the right standards of service which the community has a right to exact, either from agencies created by it or agencies under its supervision. Broadly speaking, this may be called the field of community civics; and within this territory a wide range of units of study for social science may be made. At the present time, there are some enthusiastic advocates of community civics who perceive the opportunity for this field, but who, from my point of view, do not yet appreciate the necessity of organizing the work for the learner on a definite "unit" basis. In the fields referred to above, the organization of these units of study might be expected to result in systematic expositions of the facts involved, together with criticisms of the service as now rendered.

On the more active side, it is quite possible for the learner intelligently to participate as coöperator in some of these activities, as, for example, where in municipal housekeeping he takes his share in contributing to community cleanliness, order, and high-grade choice in the field of amusements. This intelligent coöperation is doubtless something which is capable of extension into the fields of organized charity, whether public or private, community hospitality as manifested towards visitors attending conventions,

etc., and the raising of community standards in such departments as public library service, patronage of the press, of the theater, and local clubs.

A more active form of learning through participation in social science is to be found in the organization and conduct of a special form of government within the school, which is in itself a society in need of regulation and standards of conduct.

I am persuaded that within the field of social phenomena in which the student may take direct contact in part by participation, and in larger part by observation supplemented by readings, are to be found large opportunities for education in social science. Nevertheless, it must be recognized that many forms of social phenomena lie entirely outside the range of the pupils' observation, but with reference to which it is highly desirable that they should have systematic education. Local government can be studied largely by direct methods of observation and inquiry. The forms and activities of central government can be studied only very slightly in this way. Consequently, units of social science study should be organized in which contact through reading and other sources of indirect information must be largely utilized. It is quite possible, indeed, that in such fields as finance, central government, including legislation, war, tariff, dissemination of information, penology, and the like, can be organized a long range of units, with definitely indicated readings, on which it will be possible for

students to build up a considerable range of information of positive social value.

Ultimately, from my point of view, the study of history will be largely correlated with this social science study and with valuable results for both. As I see it, at least in the earlier years of the high school, we shall make no attempt to study history in a systematic chronological order, and inclusive of all classes of social phenomena alike. Only the mature student is capable of this kind of attack; but the younger student is fully able to take certain lines of social phenomena with which he has become somewhat familiar in his local environment, and to pursue quite extensively the study of these, as they occurred in other places and in other times, by means of printed material. In such a subject, for example, as exchange of commodities and the territorial specialization of production and the transportation of commodities that are connected therewith, it would be easy for the average fifteen-year-old boy to study conditions as they existed in America one hundred years ago, or in England three hundred years ago, or in the Mediterranean nine hundred years ago, or even two thousand years ago. Again, when the pupil has been brought into some understanding of family life and the influences which make for its solidarity, it would not be difficult for him to go back in history and study family life as found in mediæval Germany, the Roman Empire, the Grecian city, the

Hebrew community, or even in tribal stages. It is quite possible for the pupil who has made some little study of the part which money plays as a medium of exchange, to be taken back, in history, to a period when there was no paper circulating medium, when coinage consisted largely of copper, and to prior periods when the state did not, itself, regulate coinage. A wide range of topics of an historic nature can thus be approached, even by a second-year high-school student, on the basis of his concrete contact with the modern manifestations of these phenomena as found in his community and in his own time.

Reference has been made above to the concrete study mainly of social phenomena of a governmental or quasi-public character. It must be recognized, however, that the field of social phenomena is, by no means, restricted to these, and there is no reason why, as a part of social science work in the high school, we should not have the student enter into other fields, such as those connected with modern business, production, and exchange; charity as administered by private and philanthropic agencies; the organization of family life; thrift, and the saving of capital; worship; the patronage of amusements, etc. These are capable of multiplication almost indefinitely. In these fields, again, a certain amount of concrete participation and contact under the stimulus of the school, is possible. We already have examples of this in school savings banks, and the organization, under the school from

time to time, of groups for the administration of relief, for the promotion of some form of public improvement, and for the introduction of better standards in amusements. Again, within these fields, observation and interpretation can be made to play a large part. It must be admitted that difficulties will be at times encountered in handling cases, but, as in the fields of mental science and physiology and hygiene, the tact of the teacher must ultimately prevail in deciding what shall be included and what omitted.

We have as yet no satisfactory analysis of the units which would make up a satisfactory scheme of social science, for example, for the second year of the high school. My belief is that teachers in your position can accomplish this most successfully by assuming a definite amount of time, say an average of eight hours per week throughout the second year of the high-school period, to be devoted to social science, including history, and then dividing this time roughly so as to give a due share to each of the three heads mentioned below. These divisions are: (a) project problems, in which the learner will be expected to have experience in active participation, which he can describe and interpret; (b) observation problems, where the learner can have facilities for concrete observation, and where, as a result of such observation coupled with reading, he will describe and interpret to the class; and (c) reading problems and studies, in which the learner will have to obtain most of his informa-

tion from reading and analogous sources, interpreting this as best he can for the class.

Under the head of project problems we must recognize these distinctions:

1. Those situations in which the student can act in an executive or controlling capacity, as, for example, in student self-government, in active work done in cleaning up back yards, in making deposits in savings banks, in organizing church societies, etc.
2. Those in which his position is that of intelligent critic of services rendered by special agents in the community, as where he studies and passes judgment upon the water service, the exercise of police authority, the juvenile court, the cleanliness of the grocery store, the purity of the milk supply, the regularity of street-car service, the cleanliness of streets, etc.
3. Where the position of the learner is primarily that of conscious conformity to established rules and regulations, as where he turns to the right in traffic, where he comes to school on time, conforms to police requirements, etc.

Furthermore, it may prove desirable to differentiate each of these divisions according as the activity involved is primarily (*a*) governmental; (*b*) quasi-public, as in the services of public utility corporations, charity, amusements, licensed institutions, etc.; and (*c*) private, not subject to any control except that of public opin-

ion. These last divisions it may prove desirable also to continue into the second and third groups given below:

I. PROJECT PROBLEMS. Involving the actual participation of the learner, either:

1. In an executive capacity, such as: (a) school government; (b) cleaning of back yards; (c) savings bank participation; (d) hospitable actions towards visitors (example: Boy Scout guiding); (e) notifying health authorities of conditions requiring attention; (f) notifying police authorities of conditions requiring attention.
2. As an intelligent critic, such as: (a) examination of local water supply, and criticism thereon; (b) study of juvenile court, with criticism; (c) inspection of the cleanliness of streets, with criticism; (d) description of moving picture exhibitions, with criticism; (e) study of local library service, with criticism; (f) examination of street-car facilities, with criticism; (g) observation of cleanliness of railway station, with criticism; (h) study of mosquito-breeding agencies in parks, with criticism; (i) study of provision of public bathing facilities, with criticism, etc.
3. In intelligent conformity, such as: (a) problem of intelligent conformity to regulations regarding street traffic; (b) problem of intelligent conformity to requirements as to disposal of crude waste,

such as ashes, paper, etc.; (c) conformity to regulations regarding sanitary precautions against disease; (d) conformity to regulations regarding display of food products by grocers; (e) special problems of conformity according to occupations that may be pursued, such as selling papers, delivering groceries, working in factories, etc.

II. OBSERVATION PROBLEMS. Involving description and interpretation:

1. The work of the State Legislature.
2. The organization of the local water service.
- 3-10. Various forms of local governmental service interpreted and described.
11. Food production in the community and vicinity.
12. Food importation in community and vicinity.
13. Banking facilities in the community.
14. Fire protection in local community.
15. Work of the department of health.
16. Work of the school committee.
- 17-20. Various forms of quasi-public service described and interpreted.
21. Study of the essential features of family life.
22. Study of work of church societies.
23. Private charities of the community.
24. Boys' and girls' clubs and athletic associations, etc.

III. PROBLEMS OF READING AND STUDY:

1. The work of the National Congress.
2. United States Government as a builder of canals.
3. The tariff, as a means of taxation and as a means of protection.
4. The defensive organization of our government.
5. The National Government educating Indians.
6. American colonies.
7. English colonies.
8. Dutch colonies.
9. The war organization of England.
10. The educational organization of Germany.
11. The public railroads of Switzerland.
12. The lighthouse service of the United States.
13. The United States as a builder of irrigation systems.
14. The importations and exportations of Brazil.
15. The citizenship of the Roman Empire.
16. The State of Greece.
17. Grecian commerce on the Mediterranean.
18. The Portuguese and Spanish as explorers.
19. The importation of negroes into the United States.
20. The control of currency and coinage in the United States.
21. Coinage and currency in the first part of the nineteenth century in the United States.
22. The coinage of Greece and Rome.

23. The domestic institutions of the North American Indians.
24. The family life of the Chinese.
25. The Catholic Church as a charitable agency.
26. What tribal organization means.
27. The history of the theater.
28. The story of the public library.
29. The amusements of Americans one hundred years ago.
30. Immigration into the United States.

XVIII

*To a Committee appointed "to investigate and report on
Current Criticisms of High-School Mathematics":*

I NOTE with much interest that you have been appointed members of a committee to consider current criticisms of high-school mathematics. Inasmuch as I have several times raised questions as to the place and purpose of algebra (and geometry) in the general scheme of secondary-school studies, I gladly take advantage of your invitation to suggest to your committee some of these questions for consideration, and also to set forth certain views which appeal to me as deserving attention at this time.

It seems to me that the appointment of your committee is most opportune. We are undoubtedly entering upon an era in education when the whole question of educational values is to be studied with the aid of methods of a more or less scientific nature. For many years we have been building up an extensive literature as to methods of teaching high-school subjects, but to a large extent we have thus far neglected the much more fundamental question as to why these rather than other subjects should be taught, and as to what are the demonstrable values of any and all of the traditional studies. We have left largely to the public, itself, a criticism of educational values, both of

secondary and collegiate education in general, and of particular subjects of study therein.

The questions which I think require first consideration in a discussion of mathematics in secondary education are the following:

1. What are, or what should be, the controlling educational purposes to be served by the study of algebra in secondary schools? (Algebra is taken conveniently to represent the mathematics (usually) prescribed for high-school graduation, and for admission to college.)
2. Is it yet practicable to demonstrate either that these purposes are important for all pupils, or that they are realized in the case of many of the pupils taking the study?
3. Are these purposes as yet so definitely formulated that it is practicable to determine how far given organizations of the materials of algebra, or given methods of teaching, result in their realization?
4. More specifically, why should girl students in high schools be required to take algebra before being allowed to graduate?
5. Why should women students seeking admission to college be required to present algebra as an entrance subject?

Those of us who must study the problems of secondary education from the administrative standpoint are beginning to realize that there is urgent need of

a general examination of the purposes which are alleged to be served by all the academic secondary-school studies. It seems to some of us that the support given these studies by the public and by educators is in many cases founded largely on faith and belief rather than on definitely ascertained knowledge.

It is obvious to all, of course, that some knowledge of algebra bears to certain professions a relationship analogous to that of arithmetic in the work of the book-keeper. It is an essential tool. No one disputes that a young man expecting to study engineering should equip himself, as preliminary thereto, with a good knowledge of algebra. But what of the young men who expect to follow medicine, or law, or journalism, or theology as a career? It is not clear that these will be able to apply in their vocations a knowledge of algebra in an instrumental way. Neither is it evident that any demand for a knowledge of algebra is made by the vocations into which the vast majority of women enter after graduating from secondary schools and colleges.

It is sometimes asserted that a knowledge of algebra is essential to the pursuit of certain higher studies in college, notably physics and economics. It is clear, of course, that there are phases of the physical and biological sciences, as well as of economics and sociology, which can be profitably studied only by one having a good equipment of mathematics. But do these lie within the field of general or liberal education as

ordinarily conceived? Do they not belong rather in those special fields into which only the student of exceptional ability and with exceptional interests will enter? The mathematics required for the science subjects as usually presented in school and college courses represents little beyond what a good knowledge of arithmetic and some special study of a few literal formulæ should give.

In other words, I question whether a close and honest examination will establish the validity of the oft repeated claim that a knowledge of algebra is essential to the pursuit of the advanced studies, vocational or general, which high-school pupils are likely to undertake. To take a specific case again, I doubt whether it can be shown that the subsequent studies and practical pursuits of our women can be shown to constitute good grounds for requiring the study of algebra on the part of all high-school girls.

I am convinced that the prominence of algebra in secondary education rests not so much upon faith in its usefulness as a tool of further learning as upon the belief in its value as a means of "mental training" and upon the faith that somehow a knowledge of algebra is essential to general culture. It is the grounds of these beliefs and faiths which I think greatly need examination by your committee.

It is not to be understood, of course, that I would disparage these beliefs and faiths. It seems to me that nearly all enduring beliefs of this character have ele-

ments of validity. But it is important, as a means of economizing energy in our age, that we periodically examine and test these beliefs. An important step in this direction is the study, where practicable, of the history of their appearance.

Now there are certain important historical facts which can, I think, be readily established regarding the place of algebra in secondary education.

- (a) The subject attained its development at a period when there was a scarcity of material or knowledge (outside of the classic languages) suitably organized for purposes of secondary education.
- (b) Coincident with the rise of the American academies there existed a great interest in land surveying; and along with the rise of high schools, there developed a demand for knowledge of civil engineering, and later, of mechanical and electrical engineering. These conditions caused a constant premium to be placed on the study of mathematics by brighter students.
- (c) When, after a long campaign, the rights of women and girls to equal educational opportunities with men and boys were established, during the nineteenth century, it was very natural that the "going" programs of education of boys (with their stressing of algebra) should be taken over by girls' schools, and should be continued for mixed classes.

- (d) Algebra is one of the easiest of secondary school subjects to teach with a certain degree of apparent effectiveness. Lessons and hard tasks can be assigned easily, and a very duffer of a teacher can make pupils work slavishly in this subject. In most small high schools to-day it will be found that the teacher with least special preparation for his work is usually teaching algebra. The case here is somewhat analogous to the practice of "electric" and "magnetic" healing by "near" physicians.
- (e) To parents, algebra seems often to suggest mystical values. They see in it a study which makes their children "work hard." Success in this study seems closely related to success in other studies and to success in life. *Post hoc, ergo propter hoc.*
- (f) It is probable that algebra constitutes an excellent hurdle whereby to test the powers of those desiring to enter college. It seems probable that, on the whole, young people who do not succeed in algebra, whether for lack of ability, or owing to lack of will-power or motive, will not succeed in other studies or in college work generally. Personally, I am inclined to attribute to this "hurdle" quality of algebra its important position as a college entrance subject. In other words, it is entirely possible that, even if it could be demonstrated that for the large

majority of students the study of algebra was of no positive educational value whatever, nevertheless, as a ready and effective means of "sorting out" young men and women who would probably succeed in college work, it might still have value in a scheme of college entrance requirements. This, on the assumption, of course, that ability to "do" algebra indicates ability to "do" much that college courses require, and that weakness in algebra suggests probable weakness along other lines.

It should be remembered in this connection that even college men frequently use as an argument to prove the value of the study of algebra the apparently obvious fact that success in life in certain lines is often (perhaps commonly) associated with ability in mathematical studies.

Post hoc, ergo propter hoc.

- (g) The final historical reason to be noted as accounting for the ascendancy of mathematical studies in general education is found in the long dominance in educational theory of the so-called "faculty psychology." It is not necessary to discuss here the hypotheses of that system of psychology. You are well aware how insidious and persistent are some of the reasonings which it has made possible. Many practical men still talk, thoughtlessly, of teaching "observation," "honesty," "precision," "thor-

oughness," etc. They desire the schools to train "the memory," "attention," "judgment," "the reason," "honor," etc.

Now, it has always been clear that a pupil wrestling successfully with a problem in algebra is forced to make use of certain mental powers in a systematic and forceful way. The conclusion that the "general powers," of which these certain specific phases are called into exercise by the problem, are being trained thereby is easy and natural in the light of the "faculty psychology." Of course few really thoughtful teachers of mathematics are now carried away with this outworn psychology, but the extent to which its derivative effects in education still persist is discouraging to those of us who desire to have educational thinking advance beyond its present mediæval stages.

I need not enter here into a discussion of that defense of the study of algebra as a secondary school subject which is based upon the supposed relation of that study to the general culture of our period. As you perhaps know, my interest in the general high school centers chiefly in the efficiency of that school as a means of general or liberal education. Vocational schools we shall have, eventually, in great number and variety. But the general high school ought to remain chiefly a school giving personal culture and training for citizenship, with opportunity to elect a

few studies which promise to have an "instrumental" or "prevocational" value in vocational studies or in careers subsequently to be entered upon.

From this point of view, I feel that the high school should be greatly improved as an agency of general culture and of training for citizenship. It should give the pupil *widened vision, enhanced appreciation, and varied understanding*, as to the *important things* of the world in which he lives. My chief complaint against Latin and Algebra (both of which hold monopolistic positions in the secondary-school curricula of to-day) is that they do not, as taught, effectively minister to these ends. It is questionable whether, under present conditions, they can be made to do so. If algebra could be taught so as to give the average pupil some vital insight into the extent to which quantitative thinking enters into and determines modern life, it would be a great gain.

My general interest in the questions which you have under consideration arises partly from the fact that algebra now occupies so important a place in the studies of the high-school pupil, both as a condition of graduation, and as a condition of getting into college. Either the aims of so important a subject should be more clearly defined and their value demonstrated, or else it should be placed on a strictly elective basis, both in school and in schemes of college admission requirements. Does not algebra now occupy something of the place of the dog in the manger as regards the programs

of many students, especially girls? Understand, I would deprive no girl of opportunity to study it if she desired; my protest is only against the prescription, with its possible resulting exclusion of more valuable studies (for her).

If I had a free hand in administering a secondary school, I should, in the light of my present lack of knowledge and my unbeliefs:

- (a) Make algebra (and other mathematical studies) elective or optional, both for graduation and for admission to college.
- (b) Devise courses in mathematics for all students preparing for engineering callings, or for other vocations where such studies demonstrably "function," these courses to be administered in accordance with exacting standards of scholarship, and to involve very many studies of the application of mathematical principles to practice (suggested by the "Perry Movement");
- (c) Seek to develop a "culture" course in mathematics which should prove attractive to students seeking to inform themselves about the world in which they live; this to include some account of the evolution of mathematics as a human tool and means of interpretation, as well as a survey of modern applications of mathematics to the understanding of the universe and to the work of the world. Just as many of us can enjoy and respond to operas, epics, and great paintings

without being artists in these fields, so I think many could be led to appreciate the place of mathematics without becoming mathematicians.

I trust you will appreciate that this is written in no critical or destructive spirit. The questions suggested here seem to me fundamentally applicable to almost all the traditional subjects of secondary education as now organized. I should greatly appreciate the criticisms of yourself or of any member of your committee to what is here set forth.

XIX

To a Teacher of Physics and Chemistry:

ALONG with many other persons interested in the physical sciences, you are doubtless disappointed at the place that has finally been given to chemistry and physics in modern secondary education. These subjects are distinctly not popular in the modern high school. They are taken in a perfunctory spirit, chiefly by pupils anxious to meet college-entrance requirements in them. The work has become exceedingly formal and unattractive. Many of us are convinced that our high-school graduates who have had one or both subjects have had their outlook upon the world of physical phenomena modified only to a very slight extent thereby. It is not apparent that such students possess, as a consequence of their study, any extensive appreciation of what we mean by the scientific method. They are usually quite helpless in endeavoring to interpret applications of physical science to the practical affairs of life. They have dealt so long with applications of a very abstract character, through formal and technical work in the laboratory, that the whole subject seems to have become more or less distasteful, and to be associated with problems that are unsolved and, to a large extent, incapable of solution. It may be that this characterization is somewhat less true of

chemistry than of physics, but I believe that it applies to both subjects in large measure, and that it is becoming increasingly true of chemistry.

Now, this outcome of science teaching in our high schools constitutes an interesting contrast to both the hopes and the fears of educators of a few decades ago. At that time, there was a royal contest in the field of education between the advocates of the sciences and the advocates of the so-called "humanities." Men who believed that the classical education constituted, by long odds, the most valuable phase of general, or cultural education, were apprehensive lest the increasingly popular scientific studies should gradually bring about the disappearance of the humanities. They looked upon the science studies as being taken chiefly by people interested in the "bread-and-butter" aspects of education. They were frequently referred to in terms closely resembling those now applied to the so-called "vocational studies" in high school and college.

Gradually, however, the science studies have become more technical and abstract in character, and because of the increasing difficulty of college-entrance requirements there has been a tendency to place these subjects in the last two years of the high-school course. Both physics and chemistry are usually now electives, although of course students preparing for technical institutions of higher learning must usually take physics.

I believe that educators generally who look broadly

into the field of secondary education must experience a sense of disappointment as to the results now achieved through science teaching, particularly in physics and chemistry. I do not believe that the results can be described adequately by the word "culture" or by the words "mental discipline." The college, in endeavoring to define and elaborate its entrance requirements has, as I see it, sterilized both subjects, and has deprived them largely of educational value, at least to students not going to college. There are signs that science teachers in some quarters are taking serious note of this condition, and are considering possibilities of reconstructive work.

Do not understand my view as implying that we are at liberty to blame the colleges wholly for the condition of affairs which now exists. In fact, in this as in other fields, I am disposed to blame the colleges far less than I am the teaching body in any particular field of instruction in our high schools. The colleges have probably done the best that they could with the knowledge which they possessed. They have increased, as they were bound to do, the definiteness and exacting character of their requirements, but they have done so largely because the teachers in these fields had not anticipated them in raising standards. If to-day American colleges were to take hands off, and to give the teachers of physics and chemistry in colleges and high schools opportunity to teach what, and with what degree of effectiveness they pleased, I can believe

that results would not, in the near future, be substantially different from those obtained at present, except that possibly the work offered in upper classes would become somewhat more superficial in character.

In other words, I doubt if we yet possess an adequate pedagogy of science teaching with which to guide our efforts in constructive work in these fields. We still adhere to the notion that to teach physics means teaching at the outset certain principles, laws, and methods applicable to the whole range of the subject. Our teaching tends constantly to run to drilling pupils in abstract principles, because these are the features of the study which seem to the adult mind basal and most universally applicable. It is entirely possible that in the early stages of the development of science teaching, this view was, in a measure, soundly pedagogical. When available knowledge in any particular field was very limited, and when the absolutely new things were the laws and principles which had just been evolved, then such teaching had a popular value and significance.

Nevertheless, I believe that any attempt to adhere now to this general method of approach and organization of subject-matter is destined to give us just the kind of inadequate response which we now obtain, and to lead to a perfunctory attitude on the part of the large majority of pupils.

The fundamental difficulty, here as elsewhere in the field of secondary education, is that we have not yet

clearly defined the purposes to be kept in view in our teaching. Broadly speaking, it is not the function of the high school to teach physics or chemistry, but to train and instruct its pupils, among other things, through and by means of physics and chemistry towards useful ends. What are these? That is the question that has not yet been satisfactorily answered; and until it is answered, our attention given to subject-matter alone will tend constantly to ignore the requirements of the pupils which our schools receive. I wish it were practicable for your association, and others like it, to devote a certain amount of attention to analyzing, in the light of the best knowledge of the day, the practicable educational purposes which for given groups of pupils it is possible for the high school to realize, and then on the basis of this to take such material from the fields of chemistry and physics as might be worth while.

Occasionally, it is true, our schools do endeavor to state their aims otherwise than in terms of the mastery of so much subject-matter. For example, I suppose most teachers of science believe that it is important for their pupils to be trained in what is vaguely called "the scientific method." The idea involved here, I imagine, is that pupils shall be trained to appreciate the value of dispassionate and exact approach to the phenomena of nature, to apply instruments of precision, and to deal with and in exact descriptions, including the use of quantitative standards, wherever practicable.

Now, as generally stated, the desire to train a boy or girl living in the twentieth century in scientific method is certainly laudable. What we have not sufficiently ascertained is both the means of applying scientific method in any field of human activity, and the methods by which a youth may be trained in it. You will notice here the same mistake that is made in the uncritical application of the traditions of so-called "mental discipline." It has been assumed that a pupil trained in one field in scientific method would naturally and inevitably apply his knowledge and intellectual standards in other fields; even those not closely related. It is by no means certain that this is the case. A pupil may be very elaborately trained in the field of physical knowledge, and yet approach problems of political economy, history, or of his daily life, in almost any direction, in a very uncritical spirit and quite without a keen sense of the meaning and value of scientific method.

Again, it is sometimes stated that one of the chief purposes in the teaching of both physics and chemistry is to give the youth a grasp of the principles and laws which may later find application in a variety of fields of human knowledge. A student will eventually study, for example, the field of electrical engineering. In a high school he can obtain, in a comparatively brief time and with a limited expenditure of energy, a knowledge of fundamental laws of the application of electricity. He has thus learned, as it were, the alpha-

bet of the technical knowledge which he is later to acquire. This contention, too, seems to possess merit, but it breaks down in its actual applications in a variety of directions. For example, there is very little evidence that a high-school girl trained in chemistry and physics as now taught is capable of making any conscious application of these to the vast variety of problems which confront her in the household. It may be doubted, indeed, whether for the average mind, at any rate, there is any such thing as an easy or natural application of scientific subjects, except as that application is taught *pari passu* with the learning of the principles themselves.

Assuming that you agree with me that teachers of physics and chemistry now find themselves in a difficulty, in view of the conditions imposed upon them by the colleges and in view of the condition of carrying out experimental work in pedagogy in our high schools, you will naturally inquire what constructive suggestions I have to offer.

The first suggestion I would make is this: Almost any high-school teacher, or group of high-school teachers, in view of the knowledge which they possess, could elaborate in detail a study along the following lines:

Assuming that in high schools teachers were entirely free of college entrance requirements and were able to give to physics and chemistry the amount of time now usually allotted to these subjects through

two years, what manner of instruction should they employ and what methods, if they desired to accomplish one or more of the following objects: —

1. To give to their pupils a broad and genuine appreciation of what the developments of physics and chemistry mean in modern life, using for this purpose current magazine literature and contemporary books, with a view to showing the accomplishments of engineering and other professions wherein these sciences find application.
2. To give to these pupils, also, a quite definite appreciation of what is meant by the scientific method as this finds exemplification in the exact terminology, the testing of laws, the use of quantitative standards, and the researches in pure sciences such as astronomy, physics, chemistry, geology, mineralogy, and in such applied fields of science as mechanical engineering, electrical engineering, lens manufacture, the construction of mills, mining, manufacture of food products, manufacture of chemicals, etc.
3. To extend their experience in interpreting the phenomena of environing nature, with more or less recourse to scientific principles and laws as these are found in books of reference, this work to be done by taking any given phenomena and carrying the interpretations and elucidations of the book as far as practicable. Such common phenomena as the tides, the use of steam as a

source of power, the applications of electricity, the movements of the planets, photography, the preparation of foods by cooking, such natural manifestations as earthquakes, volcanoes, and the like would all serve this purpose.

You will observe that under these three heads there has been an attempt to formulate three purposes that might be realized through science instruction, and which are assumed, tentatively, to have a social value. These purposes are:

1. That the pupil should comprehend the world in which he lives as this has been affected and modified by scientific knowledge in these fields.
2. That the pupil should come to some realization of what is meant by scientific method as this is applied variously.
3. That the pupil should have experience in and disposition towards the scientific interpretation (as far as his available powers and knowledge permit) of the phenomena which impress him in his environment.

I strongly believe that if, among our science teachers to-day, questions like the above were defined in some such fashion as that suggested here, a formulation of materials and methods for their tentative realization would produce a substantial advance upon present methods of science instruction. I grant you that many of the things suggested here are quite opposed to the underlying traditions of the teaching of physics and

chemistry as controlling to-day, but I make the suggestions in the conviction that the teaching of physics and chemistry is even now largely bankrupt, from the standpoint of the high school. If it were not for the requirements of the colleges, I do not believe that our present physics and chemistry teaching would stand the slightest show of surviving in the competition of studies as these are now found in our high schools.

There is one step that might be taken in the very near future, and through which I believe it would be practicable to demonstrate some of the things that are here suggested. I think high-school teachers could well afford to stand together in proposing to the colleges that the requirements of the latter should be so shaped and reduced, as to number of units, as to enable high schools to do almost all of their strictly preparatory work during the last two years, thus leaving the first two years of the high-school period measurably free for education without specific reference to the future goal of the pupil, whether that is to be college or a specific vocation. I am impressed with the belief that if this proposal were made definitely to the colleges, they would respond by reducing the number of units within which they would find it desirable to make specific requirements to eight or ten (twelve at most), which would have the effect of freeing the first two years for constructive and experimental work.

In these first two years, then, I would give at least one year (two could be had for this purpose if an at-

tractive program were prepared) to what I should call "general science." If one year only were available, I should divide this about equally between physical science and biological science. Within the field of physical science, and taking due account of the relative immaturity of the pupils, I should offer material designed to achieve the ends suggested above. I believe the experiment, if approached in a proper spirit, would produce results amply justifying itself.

Another method of approach which I believe possesses great merit is that now being followed by a considerable number of high-school teachers of an adventurous disposition, and especially in those States where the higher institutions of learning are disposed to be least exacting in specific ways as to entrance requirements. I refer to several attempts being made to teach both physics and chemistry more largely through their applications rather than on the basis of definitions and principles, illustrated by a few very artificial experiments and the briefest possible amount of interpretation and descriptive material. You are, of course, aware of the magazine articles and tentative attempts at textbook writing in which this line of approach is set forth. I believe it is not impracticable to make this work so interesting and attractive that pupils trained in it will come to the higher institutions of learning at least as well prepared as those from the more conservative high schools, to meet the needs of these institutions.

The reason why I favor this approach, even though it seems somewhat artificial, is that I am convinced that pupils taught to approach physics and chemistry largely through their applications are going to be trained much more definitely in scientific method and in interpreting natural phenomena than pupils trained in the historic way, and I believe also that as a by-product of such training, such pupils will come to have a larger appreciation of the part played by scientific knowledge in life generally than those trained in the methods now generally in vogue.

I do not contend for a moment that the ends suggested above are in any sense final. You will notice that practically no reference is made to the use of science as a means of later vocational attainment. This conforms to my general belief that in the general, or so-called "cultural" high school, it is primarily the function of education to give breadth of view, and especially a wide appreciation, rather than purely technical equipment. In fact, outside of the fields of language (and that largely English language) and possibly mathematics and drawing, I do not believe it is the function of the general school to attempt to give a technical equipment for vocational life at all. I am very doubtful if mathematics and drawing should be prescribed in any school, even where offered as technical tools, because, after all, they apply only to a very limited number of actual callings. You can readily see that physics and chemistry as instruments for voca-

tional application affect only a very limited number of the occupations of life, and consequently we have no justification for teaching them for vocational purposes to any considerable number of pupils. Let technical training in the use of these sciences as instruments towards professional or other vocational power come later.

On the other hand, from the standpoint of a liberal education, I believe that all of our pupils should come to appreciate the ends described above. All of our young people should be led to inform themselves as to the significance of the various developments of science in modern life. They can readily be taught to appreciate what scientific method is, although not necessarily to apply it in these fields themselves. Furthermore, they can be trained, within limits, to approach phenomena in their environment in a more or less scientific spirit, and be led to comprehend the larger possibilities of scientific interpretation that lie behind, in case they desire to follow up any phase of science.

XX

To a Teacher of Biological Science:

THE biological sciences (whether separately considered as natural history, botany, and biology, or in a general elementary sense as biology) have had a place in secondary education almost from the beginning of the introduction of science. Unlike some of the other subjects, however, the biological sciences seem to exhibit less fixity as subjects of secondary education. They change or are replaced by other phases. Botany and zoölogy have from time to time appeared in various forms, and have disappeared again from the curriculum. Even biology as it was formerly taught, with its great emphasis on microscopic forms and "the dissection of the crayfish," has been replaced in our more progressive schools by a much more modern biology which seems to possess large pedagogic vitality. For some reason or other, college authorities in shaping entrance requirements have had far less influence in determining in detail the character of biological science teaching than almost any other subject.

There are, I suppose, several reasons for this condition of affairs. In the first place, biological science has, itself, during the last half-century undergone many transformations. In the second place, the laboratory technique has been necessarily more elaborate and

less capable of fixation in "forty experiments" or other limited sphere. Again, graduates of the biological departments in our universities, even when they become settled as teachers of this subject in our high schools, seem to possess still a considerable quantity of the spirit of scientific inquiry and research, a condition not at all so characteristic of the science teachers in other fields. Finally, the opportunities for teaching biological science through its applications in contemporary economic life and activity seem to have been more abundant and available.

It must be said, however, that like other subjects constituting the curriculum of secondary education, the biological sciences are, even yet, by no means clearly defined as to their aims. There seems to be at present a widespread disposition to insist upon their value in connection with the future economic activities of the learners. This, however, is, as I see it, a broken reed upon which to rely, because of the comparatively limited application of biological science in the large variety of occupations which men and women are destined to follow. Even in the field of agriculture, I suspect that this is so, notwithstanding the common assumption to the contrary.

It is my belief that biological science, as an essential constituent of the curriculum of secondary education, will find its final justification in two directions, first in giving all boys and girls an outlook upon the world, as interpreted through biological science, which as a

part of general culture will be demonstrably worth while, and second in giving to all persons who must stand in a utilizing or consuming relationship to life a varied and full appreciation of the applications of biological knowledge to the enormous range of productive activities as to the products of which each one of us stands in an important relation as consumer. It must be apparent to any one that we stand only, as yet, on the threshold of the practical application of biological science to such fields of human activity as the breeding of useful animals, the elimination or reduction of animal life injurious to human beings, and in the conservation of human health. The future is destined to see in these fields the development of an enormous number of specialists, each well informed in his own sphere of activity. The average man or woman cannot attain to any great extent of specialized knowledge in these fields, but he can be trained to have a very useful and valuable appreciative attitude towards the work of specialists, and to be able especially to put a premium upon that work which is done by persons most completely equipped for their work.

Personally, I am very doubtful as to the wisdom of attempts, in general high-school courses, to introduce vocational aims into biological teaching. I think that in nine cases out of ten we shall be endeavoring to have pupils develop in this direction for whom the subject will have, finally, no useful application. Again, I ques-

tion very much whether the vocational aim can be realized through any teaching without a large degree of concentration on very specific applications and the working out of projects closely related to the vocation itself. At present it seems to me almost absurd to undertake to help in the preparation of future farmers through a course in general biology. To me the important thing in this direction is that, at the proper age, a boy should begin to study the actual problems of farming, and in this connection he should be set a large amount of work in actual farming in which he, himself, shall achieve definite results. In achieving these results, he will necessarily have occasion to utilize the results of scientific research in biological fields, and it is here that he must obtain his insight into biological science as a tool of vocational activity. I would separate quite completely the study of biological science with a vocational motive from such study for general or cultural purposes.

To make biological science study "function" for the latter purpose, it seems to me essential that we should define a series of practicable goals, and adapt our material and methods accordingly. For example, as indicated above, I believe that a certain amount of biological science teaching should have as its distinctive purpose the training of young people to be consumers, in the scientific sense. To this end, the contributions of our biological knowledge in making demands for pure foods, genuinely remedial measures in medicine, and

the like, should have consideration. Again, I would have biological science contribute to an enlargement of the pupil's comprehension of modern life by an intellectual consideration through all forms of popular literature, of modern developments in agriculture, medicine, forestry, fisheries, etc., based upon this knowledge. Then, too, it would be entirely practicable to give the pupil an appreciation of the meaning of scientific method as applied in the world of pure science as well as practical affairs, and more particularly as such method applies in biological science, where such instruments of precision as the microscope, means for the breeding of bacteria, statistical determination of evolutionary change, the destructive effects of anti-septics, etc., can be considered.

The biological teacher in the present crisis in secondary education has a peculiar opportunity. Less than the teacher of almost any other subject is he hampered by the effects of tradition. His manuals, textbooks, and apparatus have assumed no final fixed forms. The colleges in their entrance requirements still allow a very large degree of latitude. Public opinion, I think, favors quite generally, in our high schools, at least one year of biological science if it can demonstrably be taught so as to achieve positive results. In small high schools, I should distinctly favor one half year of biological science as a part of a general science course (the other half being given to physical science); and in large high schools I should favor

the addition of an elective year of biological science as that has developed in our most progressive schools.

It seems to me, however, that biological teachers must not rest content with their achievements to date. They must strive to keep their subjects flexible and in a condition suitable for further growth. I believe it would be well for them to endeavor to stand together in their study of the valid aims which should control in teaching, endeavoring as far as practicable to state those aims otherwise than simply in terms of the mastery of so much knowledge, either in pure fields of biological science or in fields where biological science is largely applied.

Again, biological teachers can well afford to manifest less of a disposition, apparent in some quarters, excessively to undervalue the other subjects of high-school instruction. I have been impressed, myself, with the fact that outside of the classics we find no teachers who tend to overvalue their own specialty so much as teachers in your field.

Also, I would suggest to high-school teachers of biology that they continue to do, in even greater measure, what many of them have so generously done in the past, and that is, to take a constructive interest in science teaching in the grades. Educational opinion is now largely shaping to the end that the so-called "nature study," or elementary science up to about the sixth grade shall deal largely with life phenomena as these are found in the environment of the children.

The success of teaching in this field is determined very largely by the pedagogical wisdom of the means and methods adopted. It is a very mistaken policy for high-school teachers of science to endeavor to have this work so shaped as to constitute a foundation for later high-school work. This is carrying the principle of control from above to harmful extremes. Nature study in the grades must have its own aims, which are to be found largely, in connection with the development of children of from six to twelve years of age, in their environment as that exists.

XXI

*To a Teacher of General Science:*¹

MANY of us educators, having regard to the ideals, appreciations, tastes, insights, and usable knowledge which should constitute the tangible outcome of science teaching when this is given for purposes of "liberal" education, are greatly dissatisfied with the results of science teaching as now conducted in our high schools. We are, therefore, wondering whether a new type of course, designed for younger students, might not be devised which would give what we all vaguely feel to be possible as the "liberalizing" results of science teaching.

In this letter, and, I think, in the discussion of this question generally, we are thinking of the education of boys and girls of from twelve to sixteen years of age, and, on the whole, in grades seven to ten inclusive of the public schools (the last two years of the elementary school and the first two years of the high school). We are thinking of these children in large numbers. They have the interests, curiosities, abilities, and needs of average children of these ages. Some, dwelling in cities, are, perhaps excessively, stimulated by the artificial noises, sights, mechanisms, pictures, social contacts, and pressures of civilized urban society.

¹ This paper was first published in *School and Society*.

Some have their naïve curiosities too early sated, and, in an intellectual hothouse atmosphere, these grow over-soon into the sophistications of prematurely ripe little adults. Some, in village or in country, live amidst a wealth of natural phenomena, but are associated with no interpreters. A few — and among them some of the best minds — early acquire reading habits, and find much satisfaction in verbal approaches to science — reading the descriptions and interpretations made by others, but remaining incurious as to the objective realities themselves. Many can, and, even with meager opportunities do, become permanently interested in the utilitarian aspects of science — those discoveries and applications leading to the harnessing of water, steam, and electricity; to the navigation of water and air; to successful combat with tigers, floods, and bacteria; to the exploitation of underground minerals, forest, woods, and soil fecundity; to breeding better plants, animals, and men; and to promoting defense, security, and justice.

We are thinking, too, that these youths are to be educated in and for an age and country in which we have attained relatively complete, trustworthy, and accessible explanations of the almost uncountable phenomena which, to the natural senses, or to the senses as reinforced and sensitized by instruments of precision, appeal to us from the skies above, the soil and rocks beneath, the air about, and from our sustaining bodies, our guiding minds, and the human

groups that make our society. They are to be educated in and for a world in which man has made of his analyzed and tested knowledge and his scientific method, means of controlling natural forces and material resources towards his own multiplication, security, health, comfort, and spiritual uplift.

In a somewhat vague and general way we are purposing that, by means of education in general science, we shall inspire and assist these youths that they may, in appropriate degree, take satisfaction in comprehending in their scientific aspects those manifestations of nature, on the one hand, and those works of man, on the other, by which they are environed. Because of this comprehension we have faith that they will lead better and fuller lives themselves, and will be more companionable and useful members of the larger society in which they are to live as adults. Then, too, we expect that each one will, in a measure, derive from these studies some form of specific knowledge, power, and interest that will guide and reinforce him when he comes to do his share of the world's needed work.

But vague aspiration and aims, useful as they are in their way, will not make educational programs for us, any more than philosophy will bake bread. It seems to me that, notwithstanding the widespread interest in general science instruction in recent years, an interest which has expressed itself in the writing of many articles and the compiling of numerous books, we are still not within sight of the promised land as

regards a moderately complete, definite, consistent, and concretely illustrated theory of the aims of such instruction. And, for my part, it seems hopeless to expect any effective organization of the subject, or any considerable discovery of successful methods of teaching it, until we shall have such a theory so stated and exemplified that the average educator can understand it, experiment with it, and test its results in operation. Here and there we find very attractive fragments of such a theory or hypothesis of aim, just as here and there we find very suggestive instances of good subject-matter, organization, and method suited to general science instruction. But all these are only suggestive; they are not conclusive because they are so fragmentary, so unrelated to a comprehensive theory of education, and so lacking in definite orientation towards a larger synthesis of the principles of educational aims. Hence my conviction that those who can do constructive thinking must work towards an ample, extensively analyzed, and concretely illustrated working hypothesis of aims for general science teaching, while those of us who cannot do such constructive work must set up and persistently maintain a demand — an insistent shouted demand — that somebody shall supply such working hypothesis.

May I, therefore, in addition to crying aloud this demand, essay also some constructive suggestions as to how I think work in the making of a comprehensive hypothesis as to aim, and, thereafter, in formulating

courses of instruction and devising methods of instruction, must proceed?

It goes without saying that we must comprehend, describe, and classify the wealth of natural phenomena and of practical applications of science which are to constitute the materials and means of this study.

It also goes without saying among modern educators that we must study (in the profounder scientific sense) the native capacities, the acquired interests and powers, and the probable needs (cultural and civic, as well as immediately practical) of the children whom we are to teach.

But we must go farther. We must define and test certain theses, negative as well as positive, as to education in general science for youths from twelve to sixteen years of age. As examples, I submit the following:

1. The primary purpose of general science instruction for youths from twelve to sixteen years of age should be to elucidate, to explain, and to interpret, in degree appropriate to the youth and modest demands of these learners, and by means of genuine and vivid experience, the important facts and simple principles of accessible natural phenomena and of significant and easily comprehended applications of science to human well-being.
2. Secondary purposes, which are to be definitely subordinated in teaching processes, and to be realized, if at all, only as by-products, are:

- (a) The intellectual grasp of underlying principles and laws; (b) the mastery, as working ideal and specific habit (as opposed to appreciation and intellectual comprehension) of any department of scientific method; and (c) the mastery for use in a practical or vocational sense (as distinguished from development of appreciation) of scientific knowledge or technique.

The controlling aim in general science instruction, then, may be otherwise described as a phase of education for *intellectual* nurture or *feeding-in*, and for the satisfaction of natural or easily stimulated instincts to *know*, to *understand*, to *appreciate*. The results of this teaching are not to be measured in terms of capacity to *give out*, to *express*, to *do*.

3. The *scope* or *range* of natural phenomena and cases of applied science to be included in a program of general science instruction should be great — theoretically as great as all the available resources of human knowledge, and limited only by the capacity of the learner and the accessibility of the materials.

But for practical purposes the subject is here restricted to the phenomena and applications of *natural* science as ordinarily understood, reserving the fields of *mental* and *social* science for corresponding treatment as separate studies.

But while *general* science will use phenomena and applications from the fields described and delimited by

such terms as "physics," "mechanics," "optics," "chemistry," "biology," "botany," "bacteriology," "astronomy," "geology," "mineralogy," "meteorology," "physiology," "anthropology," "agriculture," "photography," "dietetics," "hygiene," and "animal eugenics," — to name but a few, — it should purposely and consistently ignore these historic classifications made by mature and trained minds, and even the terms describing such classifications. General science must have its own working classifications and categories, but these must be based upon other considerations, such as native and acquired interests of learners, accessibility of the phenomena and applications to be studied, and the local and contemporary significance and appeal of these phenomena and applications.

Much study and experimentation will be required to make these working classifications. For example, the naïve curiosity of the learner — the desire to know for its own sake — will be a secure basis for some groupings; while the desire to *control* or to *use* will do for others. The *near* and the *concrete* — if not so near and so concrete as to be commonplace — will often prove preferable to the remote and the abstract, but not invariably. Tigers in India, volcanoes in Alaska, comets, and the origin of man may prove to be comparatively vital and useful topics; the contemporary and novel — aeroplanes, big howitzers, a new canal — may be more available than the remote in point of time at

certain stages of interest; while at others the North American ice cap, the carboniferous age, the Roman galley, and the prehistoric arts may be best to hold the attention.

4. The *whole program* of general science instruction must be very extensive, to the end that from the standpoint of any one school or teacher or grade or pupil it may be almost indefinitely flexible. It should be so administered that, while a *quantitative* requirement may be imposed as to the amount of time which shall be given to it or even as to the general amount of ground that must be covered for credit recognition, this *quantitative* requirement must never be carried to a point involving the assumption that any two schools or grades, or even pupils, shall necessarily have traversed the same ground, handled the same topics or units, or even sampled the same larger classifications. As in the cases of literature, songs, and pictures, the available riches of science for purposes of comprehension and appreciation are far beyond the reach of any one pupil, teacher, grade, or even school. Hence, while the whole available wealth should be made as easily accessible as leaflet, picture, mechanical device, and personal contact can render possible, nevertheless each learning agency — school, grade, teacher, pupil — should have wide option, subject to certain general requirements as to quantity of par-

ticipation and quality of learning, to be hereafter determined.

5. The last thesis is conditioned on the further thesis, implicit in (1) and (2) above, that in the present state of educational knowledge it is unwise, harmful, and even impertinent for educational theorists to delimit particular divisions of general science, or principles or topics therein, as being of relatively superior importance. The criteria for such selection or delimitation, it is here contended, do not yet exist. At any rate, the burden of proof rests on the person proposing such selection as preliminary to such delimitation, to establish the validity of the educational aims in the light of which he would make such selection.
6. It is indispensable, once the aims of general science teaching are acceptably formulated, that the wealth of materials available should be organized into suitable *teaching units*, each unit presupposing a fair assignment of time, method of attack, and result to be mastered. The pedagogical principles to guide in the organization of these teaching units are yet to be discovered and stated. Historic pedagogical units, for example, question and answer (catechetical unit), lesson, chapters, topics, are all unserviceable here. Some of the desirable learning units — those involving constructive activity and practical achievement —

may well be called "projects"; but certainly not all of them can properly be so named.

Suitable teaching units should:

- (a) Require enough time to provide effective stages of approach, inquiry, organization, and conclusion; but not so much time as to fatigue and produce satiety. One lesson period is usually too short a time; a half-year too long.
- (b) Have an integral character with fairly definite boundaries.
- (c) Leave at the end of their study, a sense of substantial achievement — satisfaction of curiosity, discovery of cause, realization of use, the rendering of a practical service.
- (d) Lend themselves as to process and outcome to acceptable means of communication — verbal report, demonstration, or exhibition of product whereby the learning stages can be socialized.
- (e) In some cases — but not in all — lead to practicable achievement, in the course of which science has been learned, discovered, applied; for example, making of photographs, making of explosives — in general, the project.
- (f) In many cases — but not in all — involve practical or sense contact, first-hand inquiry, using materials, visiting, taking machines

apart, conducting experiments, etc. But in some cases purely second-hand and abstract approach; for example, composition of sun's chromosphere, production of crude rubber, etc., may be quite acceptable.

- (g) In many cases center around the answering, to the degree which youthful capacity permits, and as a result of concrete contact and experience where practicable, a multitude of thought-provoking questions; for example, What makes the electric car go? How can I make a pop-gun? How (or why) does freezing water break a pitcher? How do birds know whither to migrate? What is a comet? What causes earthquakes? Do all bodies float on water? Why does dynamite explode downward (as reported)? What processes are involved in getting water under pressure into the house? How can we prevent milk from souring?
7. Qualitatively, instruction in general science must not aim at exhaustiveness of knowledge, mastery of abstract principle or formula, capacity for detailed expression, or power to make definite application. Unfortunately, pedagogy has not yet formulated and described *qualitative* standards of instruction, so analogical illustrations are necessary. General science instruction should not seek the kind of mastery now associated with

the study of Latin, algebra, physics, or drawing. Rather, the learning standards should be more comparable to those which we should set for an appreciative reading of literature, or knowledge of geography through travel. We hear good music, see good plays, take up lines of good reading in our homes, and take journeys. These, rightly organized, give culture of the best sort. Similar standards should apply in general science.

It should be assumed that, for the pupils remaining in school, the period of general science instruction will probably be followed by another, in which one or more of the organized sciences will be studied in rigorous fashion. Here mastery of principles, attainment of specific scientific method, and development of ability to express and apply the results of such learning, will be made primary aims. For some this will constitute a part of vocational study, and for a few the satisfaction of natural interest in exact "pure knowledge." This period may come earlier in life if the "nurture" requirements suggested shall in the future be earlier met through improved elementary education.

XXII

To a High-School Principal interested in promoting the Study of Music and Art:

MUSIC and art (by which is here meant only graphic and plastic art) still occupy a less prominent place in secondary education than many persons who are interested in secondary schools as agencies of culture believe that they should hold. In part this is doubtless to be explained on the ground that the colleges have not given prominence to these subjects in their schemes of entrance requirements. It must be admitted that, on the whole, the subjects of study which have received the chief attention from our small high schools and from our preparatory schools and, indeed, from our large high schools as well, have been those in which the higher institutions of learning have defined quite specific standards.

I suspect, however, that more fundamental reasons must be found, because, after all, whenever the authorities in charge of our high schools have been determined that a subject should occupy a prominent place, they have eventually persuaded the college authorities to give it recognition, as witness the various science subjects, modern languages, civics, etc. It is true that mechanical drawing is now frequently recognized as a college admission subject, and in a few

instances music, also, but it cannot be urged that mechanical drawing has more than an indirect relation to art study, and the rarity of the instances in which music is thus far accepted is an eloquent testimonial of the failure of that subject to develop prominently in high-school curricula.

From the standpoint of the high school as an agency in the cultural education of large numbers of our young people, it is difficult to make out a case against the further development of both music and drawing as instruments in this cultural education. If we are to accept at their face value the contentions made by the advocates of music and art as to the importance of these studies in modern life, then there is every reason why the high-school curriculum, when conceived chiefly as a means of liberal education, should give generous place to these subjects. I believe the entire question deserves careful examination, and the following suggestions are made with a view to evoking discussion of certain of the problems involved. In the first place, I think the supporters of the various art subjects should give careful attention to what might be called their "social utility" value, as revealed by modern sociological studies. We too often take for granted the importance of this or that subject, without inquiring as to what message modern sociology may have in the premises. It is an important question at the present time as to whether, in all those phases of human activity in which the emo-

tional or feeling phases of life play a prominent part, current tendencies may not be in the direction of giving them a secondary place, primary functions being reserved for those activities which involve the so-called "intellectual action," that is, reasoning, abstract thinking, quantitative testing, etc. An illustration may serve to make clear this position.

It is obvious to every student of history and anthropology that in primitive life music, in its various manifestations, played an extremely important part as a stimulus and active agency in such activities as those associated with coöperative toil, warfare, worship, mating, and playing. Each form of activity had its well-defined type of chant, song, and instrumentation.

Now, it would appear that in several, if not in all of these forms of activity, music, especially in its more spontaneous manifestations, is an agency of diminishing importance. Rarely only do we find any form of music now associated with toil, and more particularly coöperative forms of work. Modern industry appears to have become too highly organized, and too greatly associated with the use of machinery to make music of any form a valuable agency in this connection. Again, modern warfare has become so complicated, and relies so largely upon exact methods and mechanical devices, that music seems to play a part of constantly lessening importance as against other means of communication, incitement, and coöperation. Ex-

cept as a means of giving expression at certain stages of patriotic fervor, it is doubtful if music will figure prominently in warfare of the future, any more than will gaudily colored uniforms or fantastic headdresses.

Music still survives as an active agency in worship, but here again certain changes are visible, which at least raise serious questions as to its relative importance. There can be little doubt but that spontaneous music as a means of worship is losing its hold, and that in many directions there is a tendency to subordinate congregation singing to expression through choirs or other selected bodies. Whether music is of lessening importance under modern conditions in courtship and mating is a question that requires further examination. This is also true of music as a means of play. In some directions there are reasons for believing that the use of music in connection with recreation is greatly increasing, while the use of some forms of music as a sedative for tired nerves and fatigued bodies seems also to be finding a larger place. In these cases, however, it is noteworthy that the music itself is produced by specialized agencies, and not by the individuals themselves; hence in these instances music cannot be described as a means of expression. Under primitive conditions, music everywhere is characterized by spontaneity, and by its very successful propagation through the imitative powers of the mind.

Now there can be no doubt but that in all the direc-

tions indicated above, modern life represents extensive and superior developments to those found in primitive stages. The only question is as to how far, under these modern conditions, music becomes an active agency. Until this fundamental question is answered, it is obvious that we shall be dubious as to how far in our schools we shall find it easy to promote interest in things musical.

I suspect that the same fundamental questions could be asked with reference to other forms of communication and activity having in them a large appeal to emotional nature, such as sculpture, painting, poetry, dancing, and drama.

It is not impossible that in some of these fields we shall find that tendencies analogous to those which under civilized conditions have taken place with reference to one of the five senses. Primitive man undoubtedly made extensive use of the sense of smell as a means of guiding him in the various contingencies which confronted him. Under modern civilized conditions, this sense is of little practical value, although all of the bodily equipment and instincts connected with its exercise doubtless survive. Modern man has substituted other means of meeting the situations confronting him and of obtaining the satisfactions formerly associated with this sense.

It is an important question to be taken up by scientists, among others, as to whether with reference to appeals to the senses of sight and hearing, where

a large emotional element is involved, the same changes may not be slowly taking place.

In any event, the whole question of the educational values of music and art as educational subjects will, in the final analysis, have to be approached in the same way as we are now approaching the study of the educational values of other subjects. We shall have to demonstrate that for large numbers of people these studies can produce important results, which "function" in modern life helpfully. It will not be sufficient to point out that the instinctive equipment of the human being presents not only many opportunities for development along these lines, but that such appeals or developments are accompanied by a large amount of pleasure which may be thought of as satisfaction. The question of fundamental importance is as to whether, through the further development of these capacities for pleasure or satisfaction, we can attain to helpful and useful activities commensurate with the demands of modern life.

The second consideration which seems to me of fundamental importance in connection with the future development of both music and art in our schools has to do with the distinction made elsewhere in these papers between education for appreciation, and education towards powers of execution, or doing. In both art education and music education this distinction, it seems to me, is of fundamental importance. It is highly probable, for example, that in the field of

painting we are under no obligation or necessity to teach more than a very few of our pupils how to draw or paint. On the other hand, it may be well worth while to expend effort in the direction of teaching all of them to appreciate good painting and illustration, in view of the large part that both painting and illustration play, or may be made to play, in modern life. Again, in the field of music, it may be the part of wisdom to teach only a relatively small number of talented pupils how to play or sing, but on the other hand it may be of very great social importance that a large proportion, and all if practicable, shall be taught to appreciate and utilize good music and good singing.

If it be contended that the most effective way of teaching people, on the one hand, to appreciate painting and pictures, and on the other hand, to appreciate good music, is to undertake to make them, at least in the early stages, performers in both of these fields, then I insist that the burden of proof rests on those who advocate this procedure to show that it is educationally valid. I suspect that the contention referred to above is merely an assumption, not founded at all upon facts of observation or experience. I believe, for example, that it is entirely possible to teach appreciation of good poetry without taking any steps whatever in the direction of teaching young people to write poetry. We endeavor to teach appreciation of the beauty of landscapes without, of course, undertaking to have our pupils shape such landscapes. In the

world of more homely affairs, I am convinced that it is worth while to train the taste and discrimination of our young people, in order that they may appreciate and value simple and good standards in cooking, dress, and the ordinary paraphernalia of life, but that these ends can be achieved quite independently of any efforts to make our pupils dress-makers, cooks, or interior decorators.

At the present time, a careful study of the distinction here made might relieve us of much confusion in the fields of teaching both art and music. It would enable us at once to restrict our efforts in the teaching of these subjects from the standpoint of execution to persons manifesting genuine native talent. It would, on the other hand, enable us to adopt the most effective methods of teaching appreciation quite independently of the more or less forced efforts of teaching execution which are now so commonly found.

I believe that if the two issues here discussed are taken up adequately, not only by persons who are, themselves, specialists in the fields referred to, but in conjunction with others who are broader students of the whole field of secondary education, we shall be able to find wherein we can utilize both music and art as agencies of the cultural education which the reorganized high school must afford.

XXIII

To a Supervisor of the Teaching of Home Economics:

EVERY person who has studied the history of education, and especially its recent history, must be keenly aware of the very great advances which have been made in recent years, both in promoting interest in the teaching of home economics ¹ in schools, and also in the better organization of the means and methods of teaching it. It is now generally conceded among intelligent persons that the teaching of subjects having to do with household knowledge, skill, and ideals is a legitimate and desirable function of the public schools; that in the upper grades of elementary schools and in high schools these subjects should be taught by specially equipped departmental teachers; and that the subject as a whole includes vastly more than cooking and sewing. Many of our foremost educators also believe that women's colleges can with profit, and should, make the subject, in its more advanced or technological phases, an optional study for every woman student. The great educational value of such studies, both in their social and in their practical results and in their effects on the mental powers of the student, is now

¹ The term "home economics" will be used throughout this letter to include household arts, domestic science, domestic arts, domestic economy, home-making, etc. In the estimation of the writer, the term is an inadequate one, however.

generally conceded by all careful students, except a few belated adherents of the so-called "faculty psychology" and the now discarded doctrine of formal mental discipline.

Perhaps I can best present my suggestions by first outlining the condition of affairs as regards the home and the work of women which many of us would like to see prevail a half century hence. All forms of education are to be interpreted finally as regards both their aims and their results in terms of a sound social economy — that is, an efficient, sound, and growing social life. The scientific social economy which is now in process of rapid development in America as regards both its theory and its practice will progressively take account of, and endeavor to control, all the factors and forces which make for individual and social well-being, educational as well as others. This social economy must be developed in the light of standards of human well-being as these may be attained in the future.

We may well assume, I think, that if present tendencies continue, there will be within the boundaries of the United States upwards of one hundred and fifty million people in 1965. Probably there will be among these relatively fewer very rich people, and also fewer very poor people than at present. Families of middle class or rank, in the economic sense, will have slightly larger families, and people less well off will have smaller families than at present. The great majority of married women will give their entire working time

to home-making, with employed assistance as at present only at critical periods. Nearly all young women will enter upon wage-earning careers of from five to ten years in length prior to marriage, and after having received a suitable general education and, perhaps, short-course vocational education for their wage-earning careers. The State will insist that every girl or young woman shall at some time learn, in a definite and effective fashion, the more essential arts of sound home-making as preliminary to her child-rearing married life.

By that time we shall have learned much more than we now know regarding the most effective methods of education in home economics, as well as in other related fields. Parents and, when feasible, girls themselves will be carefully and authoritatively advised at successive stages as to the most desirable educational and vocational careers which daughters should follow, in the light of the abilities of these girls, their economic conditions, and their persistent interests. Young women will be given definite preparation for wage-earning callings — many of which callings will probably be in homes themselves, as we cease relying upon immigrants for domestic service. But the requirements of preparation for wage-earning vocations will not be allowed seriously to interfere with the far more important social demand for systematic training for home-making. It will be accepted as fundamental that in a sound and enduring society a large majority, ap-

proximating one hundred per cent, of all women must be expected eventually to become wives and mothers. It will be generally agreed that we cannot permanently depend upon recently imported peoples either to perform the so-called menial service of the home, or in largest measure to recruit our population. It will be widely recognized that a sound citizenship and a people capable of establishing and sustaining wholesome standards of living can only be developed under conditions favoring the establishment of a maximum number of relatively small and well-kept families. This condition will also require that very few sound men and women suited to become fathers and mothers shall forego the fine responsibilities of parenthood.

The proper home in such a society will itself be a work of art, and its suitable management will require the skilled service of a well-trained woman, willingly accepting such a work as a career reaching over many years and to be entered upon with much forethought. Obviously, the preparation of the young woman for such a career as home-making will be no small task. Her education to this end must itself be a purposeful and scientific affair, and especially so in an age in which custom and tradition as the foundations of practical activities will be still in process of being replaced largely by definitely scientific procedures. Certain prominent features of that education can even now be forecasted, I believe, in the light of current developments.

Above everything else, it will be an education based upon *practice*, upon *doing*, followed by comprehension of the theory back of the action. The girl as learner will first make beginnings in the practice of any particular household art, after which she will be led to comprehend the technical — that is, the underlying scientific or artistic — principles of the art, as well as her educational development permits. The general control and administration of all this education will be under schools, because schools are specialized agencies established to give education; but these schools will utilize as a most valuable part of their educational ways and means the homes in which girls live, or work for hire.

It will then be clearly recognized that there are two distinct forms of education in the home-making or household callings, according as the controlling purpose at any stage is to establish right standards of utilization or consumption, on the one hand, or, on the other hand, to establish effective powers of working, doing, executing, or performing productive functions in the home. The pedagogical means and methods of these two forms of education will differ as widely as will the aims to be realized. We can, for example, readily imagine that by 1965 very little of the clothing to be worn by children will be made in the home; and that under such a condition, each woman will receive quite definite training, not in the art of making, but in the art of selecting good and economical

clothing. She may not be trained at all in making clothing of any sort, any more than she is now trained in spinning and weaving. She will be trained to make what the economist calls an effective and intelligent demand as consumer on those people who make a business of repairing shoes. On the other hand, she may possibly be trained to be an efficient repairer of clothing on her own account. She will, undoubtedly, be trained in the arts of nursing a sick child, but in the field of medicine proper she will be trained chiefly to choose, and to use wisely, properly trained medical service. As regards indeed all of the thousand forms of usefulness which the home-maker of the future will render, a fairly sharp distinction in preliminary education will have to be made according as her function is to be, in the first place a producer of utilities or skilled technical service, or in the second place a buyer, chooser, and utilizer. A system of home-making education which does not make this fundamental distinction will flounder amidst perpetual confusions and short-comings.

It is to be hoped and expected that, in the social economy of the future, household service on a wage basis will be not less attractive than other gainful callings, but rather more so to young unmarried women. The bulk of employed household service of 1965 will probably be given by fairly well-trained young women serving as wage-earners prior to the age of marriage. Society will prize this form of service because it will

link up with a systematic training for home-making in a way which will be more effective for all concerned than wage-earning work in the industrial and commercial callings. To help realize this end, obviously, women will have to become better employers than they are at present. Many women to-day are, as employers of service, hardly more humane or intelligent than the managers of our worst corporations so far as making for the better development of their employees is concerned. In this respect new ideas and ideals are even now rapidly forming, and with the gradual cessation of immigration, necessity will add pressure to present tendencies to induce women to make wage-earning household service an attractive and upbuilding force in society.

Obviously, to carry into operation a general program of education in home-making will require not only the provision of a large amount and variety of educational opportunities, but also a measure of compulsion on heedless or unappreciative individuals to take advantage of such opportunities. I believe that part-time or continuation education will, in 1965, be compulsory upon all to the age of eighteen; and that following that age it will still be obligatory for young women, before marriage, to give a due measure of time to systematic training in the various forms of productive work needed in the home, unless they have already reached an approved minimum standard of proficiency in the practice of home-making. I am certain

that society will, in the not distant future, insist on every one's obtaining a suitable vocational education, as resolutely as Germany and France now insist that every young man shall be trained to serve his country as a soldier. This vocational training may not always be given prior to entrance upon wage-earning; it may, indeed, for many vocations follow several years after the first entrance upon wage-earning work. Experience may, for example, show that the best time for education in some of the more technical phases of home-making, such as care of children, marketing, house furnishing and repair, etc. is at or near the age of twenty or over, after the girl shall have been engaged for several years in wage-earning pursuits. It may even become customary to take such training after betrothal or even after marriage.

The suggestions given above are submitted in the hope that they may serve to indicate the ideal standards in the light of which the following statements dealing with what seem to me to be some wrong tendencies, some deficiencies, and some of the unsolved problems in the present teaching of home economics in America may be understood. I am sure you will appreciate that these statements, some of which may appear to be critical, are made with full recognition of the youthfulness of home economics as a systematic study, and of the numerous exceptions which could be cited as to sounder educational practices than those illustrated here.

The first tendency which seems to me to be wrong in much of the current teaching of home economics is its tendency towards overrefinement or overelaboration of standards of living regardless of the financial abilities of the actual or prospective families of those being taught. We focus our attention so largely upon quality of service, upon standards of taste, that we fail to give sufficient attention to the cost of what we produce in terms of money, time, and energy. Many of us must believe that in middle-class society as it is to-day, a disproportionate amount of energy is expended upon refinements of personal decoration, household cleanliness, table service, and in other related directions — disproportionate, that is, as related to personal culture of the mind, health of body, size of family, etc. We believe that our attainments in these directions are often purchased at the very serious expense of more children in the family, the freedom of development of the children already there, the health of the mother, and the development of all the members of the family along other more wholesome and enduring lines. If it can be demonstrated that in these directions there are at present many harmful tendencies in society, then surely schools of home-making must set their standards in the direction of simplification, of correct valuations of the relative advantages of different things which painstaking labor and money can procure, and of putting a premium upon what is genuinely higher and more wholesome living. Now, with

of course notable exceptions, I cannot feel that our schools are yet doing this in any degree adequate to the requirements of the age in which we live.

As an example of this let us take dress and personal decoration. I suspect that, as viewed from the standpoint of a genuine social economy, the devotion of American women to personal decoration presents many phases of close resemblance to man's yielding to the temptations for alcoholic drink. Both forms of consumption represent perhaps good, or at least harmless, incipient and original tendencies of taste and sociability gone wrong, and carried quite generally to that point of excess where health, property, and the other more durable satisfactions of life are largely sacrificed to them. In each field strong and often unconquerable habits are formed, and vast commercial interests come to thrive upon the resulting perversions and vices. In other directions, as well as in these two, it is probable that, among both men and women, prevailing standards of consumption are often wrong from the standpoint of a sound social economy.

Now the least that can be asked of the home economics schools in this direction is that they do not enhance demoralizing tendencies. Indeed, they ought intelligently and persistently to set higher standards of living. This they can only do by always taking full account of the cost in terms of time, money, and energy required to produce a given degree of service.

Immaculate cleanliness of rooms may be purchased at the cost of health, and of excessive and needless sacrifices in other directions. The time and labor expended in table service may be procured at the expense of open-air recreation, rest, or time for reading. Shop girls ironing their shirtwaists during their evening hours in order to meet the exacting standards of their associates may be as certainly the victims of bad social tendencies as their brothers loitering in bar-rooms. If our household-arts schools are contributing to needless overelaboration and fussiness in dress and other aspects of woman's life, it is of the utmost importance that they reorganize their work and study a really scientific social economy in order to find the genuine values of life.

A second wrong tendency in much of the home economics teaching of to-day, as I see it, is found in the prevailing practice of introducing the instruction with the more abstract underlying principles, and in emphasizing these at the expense of the study of their practical application. This is, indeed, quite a natural tendency, in view of the conceptions of pedagogy which formerly prevailed, and which still largely prevail. Doubtless for a few rare and gifted individuals this general method of approach may be the most effective; some exceptional minds can pass from theory to practice, from the abstract to the concrete, from principles of science and art to good practice, with steady interest, large comprehension, and a maxi-

mum of profit. But I am convinced that the great majority of young people can do no such thing. For them the teaching of the principles of food chemistry as now carried on is largely wasted. The principles of physics, even when it is called physics of the household, do not for them constitute a sure and certain basis of practice.

For the greater number of the young people whom we teach, the mastery of practice as actually demanded in life must be the basis for the study, as far as the mental capacity and time of the student will permit, of the underlying principles. Many girls now study in high schools the principles of pneumatics, but not one in a thousand can carry these principles into practice in starting a coal fire in a stove. Even when this study is illustrated with drawings, laboratory experiment, and perhaps the school stove, it will do but little more. The pedagogical order must be practiced on the actual stove under practical conditions, then, after repeated successes and failures, should follow a search for principles as far as these can be comprehended.

What is here suggested would doubtless involve almost a revolution in much of the educational practice of our household arts classes. Few teachers of household arts will, perhaps, agree with this pedagogical view, but my experience, as well as my understanding of recent studies of psychology and pedagogy, convince me that it is in this direction we must

look for a genuinely functioning vocational education, and not less in that form devoted to home-making as an end. This proposal implies no necessary lessening as to the scope and amount of study which shall ultimately be given to the principles of science and of pure art as these apply in practice, but it suggests many reversals in the order of approach and procedure now commonly used. In practice the actual amount of science which will probably be taught under the programs which I believe will ultimately prevail may be considerably diminished, because, I am convinced, much of the so-called science which we now attempt to teach in pure and in applied forms does not actively "function" in any way. I know of secondary schools in which cooking is taught as though the intention were to lay the foundations for the making of a research specialist.

A distinction may, of course, within limits be drawn as regards this alleged wrong tendency in vocational training between courses in colleges and technical institutions designed to prepare teachers, administrators, and research specialists, and those other far more numerous courses designed for prospective home-makers and the rank and file of workers. The importance of thorough-going technical training for the former class is freely admitted. I am inclined to believe that, because in the earlier institutions dealing with home economics the pressure for trained teachers and other leaders was so marked, almost all programs

became more or less affected by the somewhat peculiar nature of these demands. It seems to be characteristic of almost all kinds of vocational training to be unduly influenced by the standards appropriate to the exceptional few who will take leading positions. It is well known, for example, that most of the secondary schools of agriculture in America are more or less weak imitations of agricultural colleges. Our first trade schools tried again and again to imitate the procedures of technological institutions. Similarly, I feel that home economics, as found in the ordinary secondary school and in upper grades, and, to some extent, in endowed institutions, partakes in undue measure of the technical and scientific standards which were, perhaps, originally worked out for a few exceptional institutions.

I wish next to take up for discussion what seem to me to be certain well-marked deficiencies in home economics teaching, both as to the theory underlying such teaching and as it is actually carried on in our schools. In respect to these deficiencies it is not asserted, of course, that home economics as a study is unique. It simply shares in some of the failings which characterize a large variety of the subjects now taught in our secondary schools and colleges.

The first of these is the failure adequately to define the aims of the instruction and training offered. It will be agreed that on the plane of conscious and scientific effort it is essential that any enterprise should

now be undertaken, as far as practicable, in the light of clearly defined objects to be accomplished, that means and methods should be chosen and adapted with reference to the economical and effective attainment of the objects or ends thus set up, and that the degree to which objects sought are realized through any procedure should be capable of being definitely tested and measured.

Now the one clear object that the layman can discern as guiding in the teaching of home economics is the intellectual mastery of certain organized knowledge. To a slight extent, also, it is evident that certain definite forms of skill in execution are made to serve as objectives. But if one asks what more ultimate purpose this knowledge or that particular form of skill is to serve in the well-being of the individual or of the society to which he belongs, the replies received will be vague and inconclusive. Some of the larger ends alleged to be held in view are really faith ends, rather than scientific ends — that is, they represent aspirations rather than clearly defined goals, as to which the stages in the process of realization are capable of definition, attack, and gradual mastery. As I read courses of instruction in home economics and observe classes at work, I seem always to miss a definite and reasoned consciousness of final aim or purpose. Let me repeat that in this respect home economics is no worse off than many other subjects, especially in the fields of secondary and collegiate education. Since,

however, this is a new field, unhampered by traditions and ancient customs, one is tempted to look for larger manifestations of the scientific constructive spirit than are to be found in the teaching of the older subjects.

Of this I am convinced — home economics will never come into its full heritage until it is organized with definite reference to the attainment of ends that are demonstrably valid and so clearly formulated and evaluated that the efficiency of our procedures — our studies, practices, and methods — can be tested against them. This will require, for one thing, that we decide to what extent vocational aims shall control in our work; that we decide for what vocations we are preparing; that we demonstrate our knowledge of the actual requirements of these vocations; and that we unsparingly test the efficacy of the means which we adopt. It means, for another thing, that we decide how far and in what direction home economics work is useful as means of general culture and civic capacity — the development of powers for wise choice and utilization as against powers of execution; what are the specific forms of this culture and civism that are most worth while, and how they shall be attained in the cases of various groups of young people with whom we may deal; and how, again, we shall test the serviceableness of the means employed.

It is no reproach to us, probably, that in this, as in so many other fields of education, we are still living largely in an age when the standards and methods of

faith rather than those of science yet prevail. In many matters pedagogical, it seems to me our position to-day is quite comparable to that of medicine in the eighteenth century. Then the sciences of physiology, chemistry, and bacteriology had not been so developed as to give aid to medicine; just as to-day the sciences most needed in education, namely, sociology and psychology, are yet in their infancy, — in the prescientific stages, indeed, of their development. We have vague terminologies, aims expressive of hope and belief rather than of tangible goals, few standards, a wealth of loose generalizations, and a combination of unwillingness and inability actually to test the results of our work. But some day the practice of education will be where the practice of medicine is to-day; perhaps even now there are at work, in obscure places, the Harveys, Jenners, Pasteurs, and Listers of our profession.

What seems to me a second prominent defect in current home economics education is its failure to use the living home as a part of its opportunities for coöperative effort and, indeed, as its chief working laboratory. Why should not many phases of home economics in secondary schools be so taught that the practical phases of the work can be carried on in the homes of the girls themselves? If students are living under dormitory conditions, why should not these serve as a basis for the practical study and application of such arts as cooking, sewing, etc., by groups of students limited in size?

Reference has already been made to the overtechnical and insufficiently practical character of much of the education offered. In part, this is due to the ease with which so-called "technical subjects" — pure or applied science, applied art, etc. — can be taught in accordance with the traditions of academic education. The most difficult teaching is that which, proceeding through practice on projects based upon the practical requirements of life, leads into a mastery of the related and needed technical knowledge. But there is abundant experience to show that for most students such an approach, properly made, is the most effective that can be devised.

It is probable that in so far as work in home economics is to be regarded as vocational, programs should be so adjusted as to insure a large amount of concentration during the time that the vocational aim is held in view. I believe, for example, that a day school for home-making should give from six to eight hours per day to that and closely related subjects; that at least half of this time should be spent in the home, working on definite projects which the school has assigned; that this work should be supervised by the regular home-making teacher, visiting the girls at work as far as practicable; that the school instruction should be based largely upon the practical projects being followed; and that general reading in related fields should be a part of the course. A concentrated program of this sort will give more effective results

in three months, I am convinced, than years spent on the two or three hours per week plan now so widely in vogue. Such a program would insure that each teacher will learn the requirements, the standards, and the potentialities of the homes of her pupils. She will be compelled to make her teaching practical, because to so large an extent the results will have to speak for themselves. Her work should be organized on a definite project basis. This is easy to secure in most phases of the teaching of home-making. Let a girl be responsible for the making of definite articles of clothing; or for the preparation of the family breakfasts for two weeks; or for doing all the baking required for a similar period; or for taking full charge of an infant for a week; or for undertaking a definite assignment of laundry work; or for doing the revarnishing of the furniture of two rooms — these and scores of similar assignments are possible. Of course the teacher should have no more pupils than she can handle effectively. Perhaps twenty is the maximum number under these conditions. Most of the work will necessarily be individual; but on the basis of the practical experience thus obtained the live teacher can weave a body of common knowledge and useful principles of very large value.

We shall have to learn that nearly all vocational education — as, indeed, other forms of education also — must be individualized. The teacher must be regarded as a supervisor of apprentices. We coddle

too much in our practical classes at present. Each pupil must have his job — a large job, fairly well within his capacity. Much planning and prearrangement will be required. Some directions, read or given, may convey technical knowledge, but the bulk of the technical knowledge should grow out of, and not precede, experience. The pupil must early learn to rely largely upon printed or written directions.

I think it is possible to apply these principles also to evening and part-time instruction in home-making, for working girls. Give one evening per week to class-room instruction; and let the teachers give two other evenings per week to visiting the girls in their own homes, while they are at work on the projects assigned.

If we ever come to the point where a considerable number of girls are working as wage-earners in homes, the problems of instruction for these should be simpler still.

A third deficiency which seems to me to characterize much of the home economics teaching as found in elementary and secondary schools at the present time is failure adequately to take account of the standards of living to which the average American home is necessarily limited. Is it clearly realized that in the large majority of American families in which the husband and father is a wage-earner, the total income is less than one thousand dollars a year? Do the programs of home economics instruction now found, es-

pecially in our secondary schools, seem to be based upon a clear conception of the necessary limitations as to expenditure existing under these conditions? To what extent are the teachers of home economics themselves cognizant of the actual standards of living which must be based upon incomes of this magnitude, or, in immigrant centers, the national tastes and habits regarding certain dishes? Can it not be charged that our home economics teaching to-day is adjusted too exclusively to standards of living of our middle-class population, a level of population where, broadly speaking, the need for this instruction should exist in least degree? I have looked in vain in the programs of most of our systematic home economics teaching to find clear indications of a thorough-going realization of the facts here suggested.

There are a few problems of home economics teaching which seem to me as yet quite unsolved, but with reference to which a considerable amount of definite study ought to be possible in the near future.

The first of these relates to the age at which home economics teaching for vocational purposes should be begun. The present tendency is to make this a part of the secondary-school course, largely because the traditions of our education now suggest that all systematic school education must be finished before the student embarks upon wage-earning. Nevertheless, it is by no means certain that an adolescent girl between fourteen and eighteen years of age is at the time of

life when she can study home economics for vocational purposes to best advantage, at least under social traditions as they now prevail. It is entirely possible that there will be found a lack of sufficient motive at this age, which will give an artificial and forced character to much of the work done. I believe, therefore, that careful studies should be made of the age at which home economics teaching for vocational purposes can be most effectively given, and that means be taken as far as practicable to modify customs, and even to secure legislation which will result in making such teaching available at the most appropriate season in the life of a girl. In England and Germany, under certain conditions surviving from the age when apprenticeship generally prevailed, a considerable proportion of persons learning skilled trades, and more particularly those trades having important technical phases, are required to spend several years in apprenticeship, after which they must return to special schools for one or more years in order to complete their training.

My present guess is that home economics teaching for vocational purposes in the great majority of cases will be most effective when given to young persons from eighteen to twenty-four years of age. Prior to this age, a large amount of teaching of home economics may well be found in all elementary and secondary grades, but the controlling purpose should be the improvement of standards of utilization, rather than

the establishment of definite skill and powers of doing work effectively.

A second problem, not strictly connected with the teaching of home economics, but nevertheless having ultimate and important bearings upon it, relates to vocational training for girls in fields other than home-making. It is well known that a large number of American industries are able to utilize, in very large measure, the comparatively untrained services of girl workers. In such industries as textiles, clothing manufacture, candy manufacture, and many others, there are now employed in America several million young women workers for whom it seems questionable whether systematic preliminary trade training is practicable. If we assume, as I think we must, that the great majority of these factory workers will probably marry between the ages of twenty and twenty-five, the question as to how far systematic trade training in their cases should be carried becomes an important one. There are sentimental reasons for assuming that extensive opportunities for special vocational training should be provided, but it is a question whether this position can be defended on the basis of the principles of a sound social economy. At any rate, the whole question as to where and to what extent vocational training for other lines than home-making should be given to girls, and what will be the relation of such training to their ultimate home-making careers, is as yet an unsolved problem.

Finally, I would suggest that, from my point of view, there is still an unsolved problem in your field as regards the comprehensive and suitable designation of the work in which you are engaged and interested. To me, such terms as "domestic science," "domestic arts," "domestic economy," "household arts," and "home economics" all seem insufficient as comprehensive terms to designate your field of work. I suggest that this is a matter in itself worthy of careful consideration. We cannot, of course, have terminology before we have developed the facts and conditions to which it should apply. Nevertheless, in this field we surely have reached a stage where aims and purposes are now so comprehensive that a more adequate and detailed terminology is surely practicable. Certainly we do not wish to embrace under the term "home economics" the numerous fields of education and research which are now rapidly developing as phases of the work in which you are engaged.

From my point of view, the term "home economics" stands, and must inevitably stand, in the minds of most persons who approach the question from a background of scientific and sociological studies, for a systematic study of art and science as applied in a particular field, for an intellectual discipline, for the mastery of theoretical knowledge. It does not sufficiently connote ideas of practice, of execution, of productive service efficiently rendered. It overemphasizes ideas of economy, of orderly expenditure, etc.,

and underemphasizes the more fundamental ideas of expert action, of constructive ability. The ultimate aim of all vocational studies is efficient production, and the ultimate aim of liberal studies in vocational fields is efficient utilization. In these studies economy, order, and restraint are but factors, and hardly major factors at that.

What I believe to be needed in your field is a comprehensive term primarily suggestive of production, of achievement, of execution. Agricultural education always suggests the development of high-grade productive ability in the fields of agriculture. Industrial education calls to mind instantly a system of making efficient industrial producers. Commercial education signifies far less certain intellectual studies than it does the development of power to act in commercial fields. The goal of engineering education is the production of a man who can render, in largest possible measure, particular forms of engineering service. The aim of medical education is to produce the successful practitioner. Our normal schools at their best set out to train teachers, not primarily to study either the science or the art of teaching.

It seems to me, therefore, that the most comprehensive term used to describe the work under discussion should be the word "home-making," or a somewhat similar term. This term conveys ideas of achievement, of learning for the sake of doing, of trained power to act. Homes may be large or small, housing

two individuals or a thousand, in which latter case the home becomes an institution. Generically, a home is a place for refuge, rest, recreation, restoration of the tired or the ill, and the upbringing of children. Home-making as a field of achievement is like agriculture, industry, commerce, medicine, and other great generic callings, in that it offers fields not only for the study of certain very simple arts, but also for most exhaustive research and the mastery of difficult fields of applied art and science. There is a technology of home-making, just as certainly as there is a technology of agriculture, of bridge building, of applied electricity, and of sanitary engineering. There are also almost endless technical studies which can be made of various phases of home-making, both by immature students and by those of ripened abilities.

Like agriculture and industry, home-making also embraces many arts, such as cooking, various forms of needlework, nursing, home education, laundering, house repair, home gardening, etc. Any one of these may be made a study in itself. Some of them rest largely on principles of science, others chiefly on principles of art. Wherever practice begins, or the study of practice, then is essentially the time to consider principles of economy, just as certainly as principles of economy must be considered in industry, in agriculture, in government, and in medicine when practice begins.

Home-making, like agriculture and industries, may

be studied and practiced primarily from the point of view of learning efficiency in execution, or from the standpoint of acquiring profounder appreciation. The first will be vocational education, the second a modified form of liberal education. My own feeling is that the comprehensive terms "home-making education" as signifying always the vocational end, and "household arts education" as studied from the standpoint of appreciation and insight, might render good service. There is no reason why we should not use the phrase "home-making" as basal to subsequent and differentiated studies and researches in the more technological and technical aspects, as we certainly do in agriculture, industry, commerce, and the professions, in which case the term "home economics" might well be reserved for a particular phase of the technical study of home-making.

XXIV

To a Teacher in the Department of Physical Education :

IN the reorganized high school of the future I predict that physical education is going to occupy a large place. It will be regarded as coördinate in importance with vocational education, social education, and cultural education. The conduct of such physical education will be under comprehensive direction. It will have its special agencies and forms of control. The means and methods which it will employ will certainly be much more scientific and effective than those now available.

The importance of physical education as a part of a secondary-school program grows, as do other forms of secondary education, out of the needs and conditions of the age in which we live. Originally, physical education was the prerogative of the home, and incidentally of the work-shop and the play-ground. In so far as it was carried on by highly specialized agencies, it was education towards some particular calling, such as the military life. Systematic physical education in schools is a comparatively modern development. It has evolved out of a more or less vague perception, on the one hand, of the almost limitless possibilities of systematic instruction in hygiene when this is given by specialized agencies organized for this purpose, and, on

the other hand, of the very great need both of instruction in hygiene and systematic oversight of physical development and training as a condition of living and working under modern conditions when the occupations themselves, as well as the urban conditions under which large numbers of people must live, render it necessary for the majority to make systematic provisions for exercise, for adjustment to the hampering conditions of their physical environment, and for a conscious promotion of sanitation.

Because I am convinced that society will become increasingly conscious of the possibilities of education in these directions, and because, also, in large measure the conditions of the economic and social environment which make systematic care of the health more and more necessary will increase, it is my belief, as stated above, that physical education will grow into the magnitude of a coördinate department in our schools.

At the present time, however, it is manifest that we fall very far short of anything like a realization of this goal. We have, indeed, in most of our secondary schools, a moderate amount of systematic instruction in hygiene. Originally this consisted rather more of instruction in the elementary sciences of physiology and anatomy than in instruction in hygiene. Furthermore, much of the instruction in hygiene offered, even today, is of a more or less antiquated and non-functioning kind. It does not intimately relate itself to the lives which the pupils are now living. If there is any

department of systematic instruction in our schools which should from day to day find application, it is surely that relating to the conditions of hygienic living.

Besides instruction in hygiene, we have in many high schools so-called "gymnastics." Rooms set apart for gymnastic practice have often been well equipped, and systematic exercises to the extent of two or three hours per week are given here. Personally, I question very much the value of this instruction in a systematic scheme of physical education. My skepticism is based largely upon what appear to me to be deficiencies in the objects which are now held as justifying this work, as well as on certain quite apparent defective and even ridiculous developments that are exhibited in gymnastic projects provided for girls' classes.

Under the first head, I refer to a failure to distinguish between general developmental work and corrective work in gymnasium practices. If it be urged that a large amount of that which is now given in the gymnastics is for the purpose of general development, I raise the question as to why, for example, a large portion of it should not be found in the systematic stimulation of out-of-door exercise. If it be urged that a large part of that which is now given is corrective, I raise the question, also, as to how far the corrective work has been preceded by systematic examination, and how far the instruction as carried on is differentiated according to the needs of correction as shown by diagnosis. The fact is, of course, that we have intro-

duced into our gymnasiums a series of exercises, and that the chief purpose of diagnosis as now employed is to prevent pupils from being overstrained; that in some vague way we believe that the two hours per week of systematic instruction with apparatus, now usually offered, does conduce in important measure to systematic development. All of these contentions seem to lack demonstrable validity, and I suggest that they should be much farther examined. A few of the manifest inadequacies in our present plan are found, for example, in the disposition, even in countries having an equable out-of-door climate almost all the year round, to put our gymnastic apparatus in badly ventilated buildings. It is certainly a serious question as to whether nearly all provision for systematic exercises and for practice indoors should not be regarded as a necessary and temporary expedient, due to inclemency of weather, and the limited number of pupils who are able to stand out-of-door exercise.

Another feature that is surely questionable is the provision, in most high schools, of substantially the same equipment for girls as for boys. One cannot help wondering if this takes account of the inherent and fundamental differences, not only in the physical make-up and development of girls and boys, but also of their probably unlike destinations so far as these affect physical strength and agility. So far as I am aware, no systematic attempt has been made to develop a line of gymnastic apparatus suitable to the

physical powers of girls as well as to the probable necessities which their future occupations and conditions of living will impose upon them.

Physical education has been forced upon our high schools from still another quarter. I refer to the control of athletics which, in many large high schools, has necessitated the introduction of a new officer, sometimes called the "physical director." In some ways, the developments in this direction seem to possess great vitality, although few high-school authorities have gone willingly into this field of work. The physical director has been looked upon as a hampering necessity, growing out of the obligation of the school to exercise oversight over the activities, and more particularly the inter-school athletic activities, of its pupils. It is interesting to note that this form of physical education has been forced upon the school from without, and, in America, at any rate, has rarely ever developed from within. A discussion of the limitations of physical education through the athletic activities of pupils is out of place in this paper. The defects of the prevailing system are recognized clearly enough by high-school authorities. We know that no system of athletic training has yet been devised which does what is required for the less physically active and the less inherently strong high-school pupils. The constant tendency is towards selection, and the emphasis of physical training on the part of those who, in a sense, are already most physically "fit." Then, again, it is clear

that physical education through our system of athletics is, in reality, a by-product of the pursuit of certain goals of social or other ambitions which have temporary value, but which have no permanency. It is contended below that to a large extent exercise, and, in a measure, physical development, should be a controlled and conscious by-product of our activities in the pursuit of other goals which are in themselves worth while. It may, indeed, be well that the physical development inherent in a properly conducted system of athletics should be the by-product of certain social goals, such as temporary fame, winning from competitors, etc. The fundamental and permanent danger in this sort of thing, of course, is that of the arrest of development in what is essentially a childhood stage rather than a man- or womanhood stage. There surely can be no objection to an introduction into a scheme of education, of incentives and goals of a temporary nature, provided all those concerned are completely cognizant of the fact that these goals are temporary, and feel themselves to be in full control of the agencies and means necessary to make effective the desirable transitions to more permanent forms.

In general, then, the criticism that, as I see it, can be passed upon forms of physical education as they now appear in secondary education, has to do with their somewhat fragmentary and unrelated nature. Not infrequently in a high school the teacher of hygiene, the teacher of gymnastics, and the director of

athletics have no direct coördination of their activities. Each is more or less of a specialist in his own field, and all of their work together covers only a very small portion of the total field of physical education, as this includes a study of the environment under which the pupils live and work, the knowledge which they should possess, the systematic bodily exercise and training which they should receive, and the ideals of physical worth which they should develop. Hence, I believe that in the near future school authorities should move towards a distinct formulation of the purposes of physical education, and evaluation of the contributions of school and non-school agencies now existing, and finally the formulation of a larger scheme of control, direction, and systematic teaching by the school itself. So far as I am aware, no comprehensive work in this direction has yet been done. For example, it must still remain true that, in the broadest sense of the word, the home will continue to be a more important agency of physical education than the school. Our pupils live most of their time in their homes, and it is there that they obtain rest, nurture, and opportunities for study. The home directs their physical activities almost completely for two days each week, and for three full months each year during vacation periods. Fundamentally, it is the business of the school to make such contributions towards a rounded scheme of physical education as the home, itself, cannot compass. This means that the school shall teach hygiene where

the home cannot teach it; that it shall inspire and direct forms of physical recreation where the home seems to fall short; that it shall, in gymnasiums and otherwise, provide corrective physical training such as the home cannot be expected to do; and, finally, that the school shall enter into the work of diagnosis and prescription all along the line, and in each individual case, to an extent which only the exceptional home has ever achieved.

This means, of course, that the instructor in charge of physical education in any high school should be a person of very comprehensive education and wide outlook, and that he should have various specialists to assist him in executing particular portions of the program which he may devise. It means that he will be acquainted with modern contributions to such subjects as the hygiene of work and study, the requirements of rest on the part of adolescents, the effect of school-room surroundings, air and the like on bodily development, the fundamentals of sex hygiene, and the means of promoting the more enduring standards of physical well-being. Such an instructor as this must be in a position to utilize a very considerable portion of the pupil's time as a means of physical education. For example, walking to and from school in the case of many of our pupils may amply suffice as a means of what we call "exercise," and in some cases even of recreation. The use of holidays and vacation periods as a means of training towards certain standards of physical development is far too greatly neglected at

the present time, and is capable of further utilization. I see no reason, indeed, why in the whole field of physical education a fully equipped instructor might not, at the beginning of every year, map out, as it were, a sort of program for the pupil to follow, including, where necessary, creative gymnastic training, participation on competitive athletics, the use of walking to and from his home, and the use of home work, all as means of physical development. This general program would then be supplemented by systematic instruction in hygiene and sanitation within the school, such instruction, as far as possible, possessing a direct "functional" value in the lives being lived by the boys and girls under instruction.

In this connection, the question should be seriously considered as to how far exercise as such should ever be made an end in physical education. Taking account of the conditions under which men and women must live and work, it may be a serious question as to whether we ought not to drop the word "exercise" as it is now being used, and substitute therefor the conception of physical exercise as a concomitant or by-product of the pursuit of vocational and recreational activities of life. Recreation is, of course, an end broad enough to be conceived of by itself. In recreation is found the offset to the monotony of vocation, and especially it involves the notion of complementary use and development of powers not called for by the vocation itself.

I am inclined to believe that ultimately we shall find that certain phases of the instruction in hygiene which are demanded in a modern secondary school can only be given by specialists. I see no reason why such instruction should not be given by a lecture system, to very large groups of pupils collectively. I think we make a mistake when we assert that instruction in hygiene must be given on the same class basis as instruction in French, physics, or mathematics. Probably the most effective method of giving at least a part of the instruction in sex hygiene that is called for would be for a city system of schools to employ very able specialists who combine, on the one hand, medical training with, on the other, unusual powers of exposition in lecture form. I see no reason why, for example, a man properly equipped for this purpose should not, in certain fields of this subject, lecture to a thousand boys simultaneously. Similarly, a woman adequately equipped could, two or three or four times a year, lecture to girls in large numbers, giving the specific information that is appropriate to this stage of development. It must be recognized, of course, that in so involved a subject as sex hygiene, as in many other phases of physical education, only a portion of the ends to be held in view can be accomplished by systematic instruction of any sort on the class basis. Much will have to be reserved for individual conference. Fundamentally we must agree, of course, that the function of the school in this, as in

other fields of hygiene, is merely complementary to the home, — the school reserving as its functions those which under ordinary conditions the home is incapable of accomplishing.

In such fields as dietetics and clothing, as these relate to hygiene and sanitation, there should be, of course, close coöperation between departments of practical arts and departments wherein these subjects are taught. This coöperation should take the same form as coöperation with the home — namely: to see that in all practical ways there should be an actual “functioning” of the instruction given in the department of hygiene. Personally, I am of the opinion that in the future the so-called “functioning” of instruction in hygiene will be followed up very closely indeed by the school, and that the pupils, themselves, will be required, as a condition of this training, to keep systematic records of their own activities and accomplishments in such fields as the care of the eyes, with reference to working in proper light, oral cleanliness, proper disposition of time for rest, moderate indulgence in such stimulating activities as dancing, etc.

Having recently been invited to assist, in an advisory capacity, the Massachusetts Commission on Military Training and Reserve (appointed to report to the Legislature of 1916), I submitted the following outline of recommendations:

1. In its most comprehensive sense the phrase “phys-

ical education" may be held to include an almost indefinite number of educational ideals, methods, and practices looking to the conservation and promotion of bodily health, including the related powers and qualities of strength, skill, endurance, and physical adaptability. But as a department of systematic education, and especially in relation to schools, the following are its principal divisions: (*a*) The provision and active utilization of sanitary conditions in educational surroundings and activities (school sanitation, sometimes called "school hygiene"); (*b*) the correction of physical defects through special efforts initiated in, and even undertaken by, schools; (*c*) instruction of children in those principles and practices conducive to conservation and promotion of health; and (*d*) the provision of the means, incentives, and direction needed for the plays, games, and training which conduce to physical growth, strength, and skill along serviceable lines (hereafter called "physical development").

2. Physical development in the sense here used derives in large part from the spontaneous or voluntary activities instinctive with children and youths living under a favorable environment of opportunity and stimulation — play, games, sports, reaching into such semi-useful occupations as hunting, fishing, gardening, errand running, etc. It can also be made to result in part from prescribed or directed activities — gymnasium training, military training, work, etc.

3. Under settled rural conditions many opportuni-

ties and incentives for physical development are found which are not available amidst urban surroundings. These include open spaces for play activities, the incitements offered by animals, woods, steeps, water, home-helping occupations, visit exchanging, etc. Facilities for physical development under direction are less available and less practicable in rural than in urban communities — and perhaps less needed.

4. It is probable that the relative need of conscious and systematic provision of means, incitements, and direction for physical development is much greater under urban than under rural conditions; while the conditions favoring such conscious and systematic provision are also much better in urban communities. Hence, except where otherwise specifically stated, the following considerations will be submitted as bearing on urban conditions, and as therefore applying substantially to persons in all occupations except farming.

5. Physical development in urban communities has heretofore been left largely to chance, as it always has been in rural sections. Streets and vacant lots make poor playgrounds; woods, water, animals, accessible distances, as incitements to wholesome physical activity, are wanting. Enclosed gymnasiums — at best available only to a few — are artificial and unstimulating. Collective activities — athletics, games, adventure — are carried on under hampering restrictions, which become provocative of defiance of constituted authority.

6. When philanthropy and public effort intervene — private effort is effective only with the prosperous who can go to mountains or seashore, or who can send their sons to expensive camps — the means provided tend to become elaborate and costly. Playgrounds, swimming pools, gymnasiums, stadiums, trained instructors, all require large financial outlay as now standardized. Furthermore, these agencies in practice reach only a few, and those already the best developed. Athletics are so specialized that youths most in need of the development they could afford are not reached. The specialization of talent in various phases of physical prowess is a deplorable result of interschool or intercommunity athletics. Vicarious expression of instincts for physical expression is probably softening to more than muscular fiber.

7. It is probable, therefore, that from the standpoint of all activities where well-developed bodies, lasting health, and potential strength and endurance are required, modern urban conditions are bad for our youth. Business life, community defense, parenthood — for all these, at least, to say nothing of the possibilities of personal character, and the happiness of wholesome living, urban life is poor preparation against hours and years of need. For the moment, we are confronted by the thought of national defense and our unreadiness for possible crises. We ask now as to the possibilities of military training in public schools.

8. It is obvious that under conditions now existing none of us are exactly clear as to what constitutes effective military training. The maneuvers of the parade ground and drill hall seem to have little positive value in modern warfare — in some important respects, indeed, they may have a negative influence. We greatly need more searching analysis of the so-called ends of “teaching habits of obedience,” “learning to obey orders,” “taking care of oneself,” and other naïve and uncritical psychological generalizations.

9. Military training is now found in many private, and some public, secondary schools. Its scope and methods are necessarily restricted by school conditions, but examination of prevailing practices would probably show certain definite results therefrom. Habits of body posture of a well-known character, some idealization of the soldier's career, and keen interest in uniforms and other personal decorations — these can be distinguished and described. Military drill in schools is sometimes asserted to be a valuable means of school discipline, and it is also contended that the youth thus trained has instilled a special sense of honor. These are doubtful claims as yet, and need examination. How far the results of such training would carry over under conditions of modern warfare is also doubtful. Probably familiarity with the rifle and some degree of skill in its use — achieved at least in some private schools — is the

most certain asset. Ability to ride — certainly at times a valuable asset — is also achieved in some cases.

10. We ought to know more, too, as to the positive contributions of military training to physical development, before reaching general conclusions. The largest need of the urban youth, probably, on the side of physical development, is a great deal of varied and relatively spontaneous physical activity. It is probably very easy to have too minute drill and habituation in gymnasium or drill hall. A large part of the military training now found in schools is always a "getting ready" for extensive physical exertion and expression, which, however, never comes. The activities of the Boy Scouts may be much better, as contributions to needed physical development, at this stage, than those of the Manual of Arms.

11. In view of the existing uncertainty as to the scope and character of desirable military training, it is suggested that special attention should be given to the following possibilities: (*a*) The provision under adequate direction of a broader program of physical development, of a simpler and more rugged character than is now found in our urban schools; (*b*) the widespread fostering of small-caliber rifle practice as an accomplishment among school boys from twelve to sixteen years of age; (*c*) the promotion at state expense of summer camps with much physical, and some military training, which, taking boys at school age — preferably sixteen to eighteen — might be continued

into young manhood, at first on a voluntary, and, if feasible, later on a compulsory basis for all.

12. A program of simple and robust physical development, organized and carried out by trained leaders, and designed especially to reach all city boys from twelve to eighteen years of age, ought to be a possibility. The elements of it are now available. The longer school day — seven or eight hours, to include at least two hours for physical development — is now found in some private schools and several public-school systems. Athletics must be so adjusted as to give scope to all who will participate, and obligatory forms should be devised for the minority who will not volunteer. Gymnasiums should be limited to corrective work and dancing, or be dispensed with. The program of school studies should be made sufficiently flexible to permit at times — perhaps twice each week — of extensive excursions, meets, trips to swimming places, etc. Swimming, like other activities, should be carried on out of doors. “Hikes” in stormy weather should be arranged, care being taken to insure suitable clothing, and a rubdown and change at the end. Parks, avenues, and country roads should be used no less than playgrounds. Indoor quarters, apparatus, and equipment should be reduced to the minimum. The one indispensable provision should be private space for changing clothes and rubbing down. The shower is probably a needless luxury. The indoor plunge should give way to the pond in the

outskirts of the community — a plan which is feasible except in largest cities. Every effort should be made to encourage exposure to all sorts of weather and adaptability to varied conditions — the ideals and powers of endurance connected therewith certainly being assets for war as now waged. It is necessary to repeat that paraphernalia and trappings for this program must be reduced to the minimum or the program cannot succeed.

13. But enlightened and skilled direction is indispensable. In a city of medium size a man worthy of a salary of five thousand dollars should be in charge — a deputy superintendent of schools. But the program, as a whole, does not contemplate large financial outlay for service, because the greater part of the direction of groups should be under unpaid lieutenants from the schools themselves, detailed for short periods of responsible leadership — the best possible initial training for the officers of the future. Nowhere have we begun to realize the possibilities of this unpaid service. Out of a city on an afternoon or evening — and ability to travel in the dark is now surely an asset for the soldier — it ought to be possible to send hundreds of hiking parties of younger boys under charge of responsible high-school upper classmen, detailed for this purpose and getting their several kinds of training thereby. Games, contests, swimming, rifle practice, etc., should all be thus conducted. Under scientific direction from the center,

such a program ought not to be costly as regards personal service.

14. Shall rifle shooting be developed as a school art? The question deserves examination. It is surely entirely practicable to have boys, city boys and in all their numbers, learn the use of the rifle. Facilities for practice with small-caliber ammunition can readily be provided if the semi-weekly accompaniment of the "hike" is provided. Rifle shooting appeals to the "achieving" instincts of most boys. It probably lays the foundations for most forms of successful warlike defense, even under conditions of modern military practice. It is suggested that if rifle practice is provided in schools, it should be begun within the period of compulsory school attendance — under fourteen years of age. Otherwise, this most obvious of the military arts would not be democratized, would become the prerogative of a select few, and would be viewed with suspicion by entire classes of the population.

15. If widespread military training is now to be promoted seriously, it can probably be most effectively and economically achieved through the summer camp, which is especially suitable for boys over sixteen years of age. Such camp should not be restricted to boys then in school — again, because the opportunity is afforded to a limited and relatively prosperous class. On the other hand, compulsory attendance would hardly be practicable as a condition for school

boys unless it were part of a general program of obligatory military training. If, however, attendance could be had without too great expense to the individual — which necessarily involves public or private subsidy — a very large attendance could even now be procured. Here, again, the principle of well-paid general direction, and unpaid assistance, is capable of large development and application.

16. In any discussion of the proposals here suggested innumerable obstacles can be imagined. But it is essential that the subject be first examined in its largest aspects, and then accommodations be made for particular conditions. For example, some of the suggestions are not practicable in our largest cities. But most of our urban population is not found in the largest cities — most of it is in cities in which a walk of a mile will bring one to open spaces. One thing is certain — the entire matter of the future physical development of our urban youth needs comprehensive and critical examination, even if that call into question some of our ancient prepossessions.

XXV

To a Superintendent of Schools as Chairman of a Committee to consider the matter of developing the Intermediate or Junior High School:

THE efforts now being made in various States to reorganize curricula of training and instruction for children from twelve to fourteen or fifteen years of age, constitute undoubtedly one of the most significant and important of contemporary movements in education. We are justified in assuming, without argument, that the scope and character of that instruction and training will be materially modified in the near future. Readjustments in administrative plans, restatement of purposes, and new developments in means and methods employed may all be expected. For some years educators have discussed plans for a "six and six" division of the years given to elementary and secondary education; and we now hear much about the intermediate school and the junior high school as means of providing better education for children from twelve to fourteen years of age. Already a large number of interesting experiments along these lines are being tried. These experiments suggest several quite distinct questions of an administrative nature.

For example: (a) Is it desirable that pupils in the

seventh and eighth grades, or even all elementary pupils over twelve years of age, shall be taken away from schools containing the first six grades, to be taught in large central schools in urban communities, and in connection with high schools in rural communities? (b) Have studies suited to children of these ages, and highly desirable for some of them, so multiplied that a wide range of possible choices now exists or would exist if school organization permitted? (c) Is it desirable that different courses of instruction shall be available for pupils of these ages — courses having common studies perhaps, but varied by means of optional or alternative studies so as more nearly to meet the needs of varying powers, interests, and probable future possibilities? (d) Is it desirable that courses of instruction shall be so flexible that individual pupils will be enabled to elect studies so as to make individual programs of instruction?

The writer holds that the theses given below can now be defended effectively, and in this paper it is proposed to contribute towards their discussion:

1. The educational needs of pupils of twelve to fourteen years of age are variable to such an extent that, if conditions of educational administration permitted, a number of courses of training and instruction, dissimilar as to many important elements and also even as to quality of results expected in common studies, should be provided.

2. The number and variety of subjects of training and instruction suited to, and desirable for, at least some important groups of pupils of these ages, are now far too large to be properly included in the educational program of any one learner; and the number and variety of these desirable studies tend steadily to increase.
3. It is highly probable that, as regards flexibility of courses of instruction and training, the school suited to the needs of pupils from twelve to fourteen years of age will in essential respects repeat the history of the liberal arts (general) college and the general secondary school, which, in the early stages of their history, offered uniform curricula composed in the main of prescribed studies; but which, subsequently, and in ever-increasing measure, found it desirable to increase the range of their studies and to give pupils wider latitude in making individual programs of study.
4. While it may safely be assumed that for some years to come at least the individual programs of instruction and training for all pupils of from twelve to fourteen years of age will be required to contain studies or elements common to all, nevertheless, it is even now expedient and desirable in well-organized schools and, of course, subject to administrative limitations as to expense, and also subject to certain general condi-

tions hereafter to be described, to allow pupils to elect individual programs in large measure from among all the subject courses offered.

That our system of education for young persons from twelve to fourteen (or fifteen) years of age should be extensively revised cannot, I think, be well contested. The organization of instruction for these pupils on the grade basis, with uniform courses, and little or no departmental teaching, is utterly inadequate for young people of these ages.

I have for some years been convinced, in a general way, that whereas our American elementary schools during the first four or five years of the child's school life offer a very good quality of education indeed, as regards children from twelve to fourteen or fifteen years of age, we fall far behind the best of European practice. I am not convinced that much of the work in our normal schools in the way of training teachers is really effective, as the services of these apply to older children. I am satisfied that much of the elaborate pedagogy which we have recently worked out for such subjects as history and geography is overdone, and reflects altogether too much the point of view of people who do not consider all the needs of pupils of these ages. Furthermore, I am convinced that some of the pupils from twelve to fourteen years of age ought to be taught some subjects which are now practically not available for them. I am certain that the opportunity to study modern language should

be open to those who have talent in that direction, and prospects of opportunities for extended study in the future. I also feel that we should be capable of developing a type of science instruction adapted to youths from twelve to fourteen years of age that would serve to enable them to interpret nature about them in an adequate fashion. Again, I think we ought to have for these pupils opportunities for some form of broader civics or social-science instruction such as now, I think, is hardly available at all. Again, I have never been friendly to the idea that manual training should be compulsory for all pupils, but have believed that various forms of so-called "practical arts," including manual training, commercial studies, agriculture, and household arts, under circumstances where these can feasibly be handled, should be available for pupils, even to the extent of four hundred to six hundred hours of instruction per year. I believe that effective teaching in schools for children over twelve years of age will have to be on a departmental basis, and I have long been an advocate of the idea that substantially one half of the teachers employed in this field should be men, at least so far as the instruction of boys is concerned. In view of the disappearance of men from elementary-school teaching, I am almost inclined now to advocate the separation of the sexes in schools above the age of twelve, to see whether we might not be able to induce communities to pay adequate salaries to bring men back into this important field of service.

In general, I feel that the entire realm of pedagogy of elementary education in these upper grades should be gone at very carefully. As regards methods of instruction, and in view of the relative lack of competency of many teachers in these grades, the last years of the elementary school constitute, indeed, a dreary period for large numbers of children, and I do not wonder that so many of the latter are eager to get out of schools just as soon as the law allows.

In the work of reorganizing education in this field, however, it seems to me to make a great deal of difference under what agencies, with what motives, and towards what ends the reorganization is undertaken. I have been for several years very much interested in the discussion of the so-called "six-and-six" plan, which has now been replaced by the discussion of the so-called "junior high school." I recognize that in California, Michigan, and a number of other States very important experiments are being carried out, which already begin to show results. |

I also recognize that, historically speaking, our system of education, consisting of an eight- or nine-grade elementary school, and a four-year high school, is largely the result of accident, the accident in this case consisting in the fact that our regular public schools were at first only elementary schools, designed to offer a sufficiently long course to satisfy the supposed educational needs of the vast majority. The public high school came in, as it were, as an afterthought,

and necessarily built upon the elementary school. Nowhere else in the world, as I understand, do we find a similar situation. In all European countries and in Japan, certainly, secondary education begins at about the age of twelve (or earlier), and consists of courses at least six years in length, or longer, as in the case of the German *Gymnasium*. In most of these cases there are, of course, parallel courses of instruction, reaching up to fourteen or fifteen years of age, for those who are not diverted into the regular secondary schools.

There are, therefore, good grounds for arguing that in America, in reorganizing the work for children from twelve to fourteen years of age, we should frankly follow the custom of other countries and extend the secondary school downward, shortening the elementary-school course to six years. I have to admit the theoretical force of arguments to this end, but at the same time I think the obstacles in the way of a development of this sort at the present time are very great, and I believe, also, there are reasons of expediency why all persons connected with a movement for the reorganization of secondary education, as such, should confine their efforts to the field of education for children from fourteen to eighteen years of age, at least until they have some substantial accomplishments to show in this field. Among the reasons which I hold for this opinion are the following:

In the first place, American secondary education

is now largely associated with the American college. The college trains almost all high-school teachers, and certainly the standards of the secondary school are defined more directly by the college than by any other single agency. Under these circumstances, I am unable to see how an extension of the high school downward could take place without a further extension of the college control and college influence, which, from my point of view, has already proven so great a detriment to the development of a genuine and effective system of secondary education. Surely you do not believe that, among the various departments in our colleges and among our high-school principals and teachers at the present time, are to be found any considerable number of persons qualified to take an intelligent view of the problems of educating young people from twelve to fourteen years of age. What American colleges at present are training teachers adequately for this field? Where in our American colleges do we find formulations of the purposes of the regular high-school studies, or of the functions that should belong to the high school, so defined as to give us good grounds for believing that, in dealing with still younger children, they could give us real help? Do you know of many high-school teachers whom you would like to see acting as departmental teachers with children from twelve to fourteen years of age? Do you feel that college departments of education have now sufficient control of practice teaching, as

well as being in possession of effective methods of instruction, such as might enable them to serve the new field adequately?

In the second place, it seems to me that all of us who are in any way interested in a movement to reconstruct existing secondary education should, for the present, at any rate, be unwilling to have the field of that education pushed lower down. The age of fourteen is now a fairly well-defined period of ending and beginning education, under American conditions. In most of our more progressive States, the period of compulsory attendance terminates at fourteen. Everywhere, by tradition and practice, the high school is free to begin any division of its work *de novo*, as it sees fit. It is not under obligations to connect with anything that has gone before. It can start anew, if it desires, the teaching of drawing, music, English literature, any form of English expression, manual training, and the like. This gives the existing high school an abundant opportunity to work within a definite territory, and all those of you who are interested in the reconstruction of this work should welcome the opportunity to start with children fourteen years of age, and define your aims and realize them. We are already inaugurating a variety of forms of vocational education, but both in law and practice we are not desirous of extending this below the age of fourteen. Indeed, fourteen is quite young enough to start systematic vocational education. There is

not the slightest reason why, in all forms of instruction in the practical arts, the high school should not develop to the utmost the principle of vocational guidance. People identified with the high schools need not worry at all about vocational guidance as this affects pupils who will leave the regular school at fourteen years of age.

If, now, a Committee on Junior High Schools, consisting almost wholly of secondary school teachers, were to undertake to reconstruct the departments of education from twelve to fourteen, they would have to do so almost wholly in the light of their secondary-school prepossessions. Few members of such a committee, I fancy, would have had actually served as teachers in elementary schools. Few of them, I think, would have any realization of the qualifications and limitations of pupils of the ages involved. I believe a large part of the interests of the various committees at present working in this field is really identified with a desire to procure early attention to the various departments in which the members are interested. If a man is interested in social science, he would like to have the beginnings of it made in the elementary school, probably, just exactly as college men interested in various departments wish beginnings in these studies made earlier than the college period.

In the third place, I believe it is very much to the interests of American education that a reconstruction

of the work of children between twelve and fourteen years of age should be arranged from the standpoint of a richer and broader elementary education, and not at all from the traditions of secondary education. I believe that a few of our normal-school teachers and principals are even now ready to give serious consideration to this problem. In three of the Massachusetts normal schools there has been a differentiation in the groups of prospective teachers, with a view to training one group definitely for upper grade work. So far, comparatively little has been done, by the principals and teachers responsible for this work, in formulating its purposes and methods on a large scale, but I have great hopes that very soon comprehensive programs will be provided. The Fitchburg Normal School is already giving a large amount of attention to a broader program of practical arts for pupils of this age. At the Salem Normal School the possibilities of science teaching have been quite carefully examined. All three of the principals have given a great deal of attention to the problem of working out programs of instruction for normal-school teachers in a three-year course that is now under way. It is from these quarters that I expect will be accumulated, for Massachusetts, a variety of practical material looking to an enrichment and reorganization of upper grade work.

For these reasons I think that superintendents of schools, upper grade principals and teachers, and normal school teachers should take an active part in all

discussions of the proposed administrative forms and pedagogical requirements of the junior high school.

However, I am of the opinion that we shall not see a comprehensive reorganization of education for children from twelve to fourteen years of age until certain administrative modifications are seen to be desirable in our local communities. This I have already discussed with you and others, and in general I have found a disposition to approve the proposals made. Briefly, my ideal is this: That in each thickly populated community, elementary schools for children up to twelve years of age should be organized strictly as local schools, quite small if necessary, staffed entirely by women teachers, and under the pedagogic supervision of an expert elementary teacher, acting in the capacity of assistant superintendent. Children beyond the age of twelve should be gathered into central schools, which in many cases would probably be quite large, and in which, instead of a single program of instruction, there should be several programs, with common elements and elective studies. To these central schools should be brought all children over twelve years of age, whether these had reached the seventh grade or not. In these central schools, retarded children would be adapted to the classes for which they were fitted, in some cases taking such subjects as practical arts with the more advanced pupils, and English in special classes organized for this purpose. In these central schools, which for the present I should

like to see called "intermediate schools," rather than junior high schools, would be found large opportunities for practical arts and for the study of a foreign language. The teaching should be largely on a departmental basis. There should be large shops, and, where practicable, gardens, or at any rate facilities for coöperating with the home in home gardening. Such a school should be under the general supervision of a strong administrator, and I believe that at least half of the teachers should be men. In smaller communities, I should not be averse to seeing this school linked up, in its building and supervision, with the local high school, but in larger communities, at least as conditions now exist, I believe that it will be far more serviceable if it is organized independently. I think that ultimately there will be a regular two-year course for all pupils who are moving on towards the regular high school, but that in addition there will be a supplementary year for pupils from fourteen and fifteen years of age, consisting largely of practical arts and other subjects fitting into a program of vocational guidance, for pupils who have no intention of going to the regular high school.

I believe it would be entirely possible for our normal schools to train most of the teachers for this type of school. The only exception I would make at the present time would be the modern language.

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